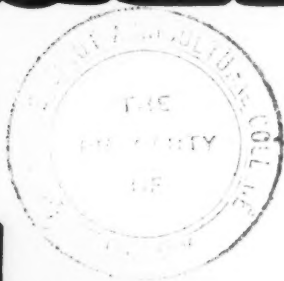
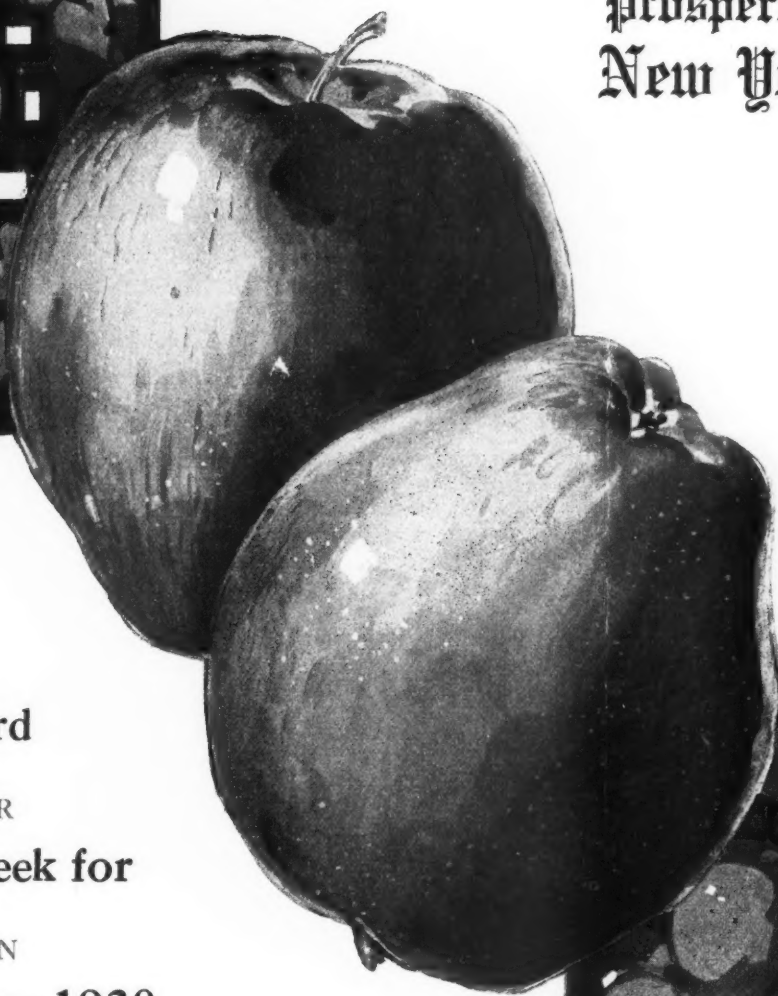


AMERICAN FRUIT GROWER MAGAZINE



Wishing You
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New Year



Increasing Orchard Profits

J. R. COOPER

Five Dollars a Week for Fruit

CARL NELSON

"Taking Stock" for 1930

T. J. TALBERT

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H. D. HOOTMAN

Warfare on Fruit Pests

W. C. O'KANE

January, 1930
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American Fruit Grower

MAGAZINE

The National Fruit Journal of America

VOLUME 50

NUMBER 1

That Care-Free Farm Board

THE RECENT acrid tilt between Julius Barnes of the United States Chamber of Commerce on one side and Alexander Legge of the Federal Farm Board on the other, over the administration of the Agricultural Marketing Act, serves to emphasize the joys of public service. It will also explain why men of outstanding ability are so generally receptive to public appointment.

Three lines of policy were open to the Board members in the administration of the Act. They might adopt a policy least calculated to disturb "Business"—and lose the faith of the producers, whose interests they were appointed to serve.

Or they could construe the Act invariably in the producers' interests—and arouse the ire of Big Business.

Or they could put on blinders and steer safely down mid-channel—and be earnestly and vociferously damned from all sides.

Truly, public service is a gay, merry, care-free pastime.

"In Defense of Our Food Crops"

IN THE WAR between mankind and the insects and fungi that prey upon the food supply, on which side will victory lie? Will mankind hold in check its myriads of enemies, or will the human race be overtaken by famine? What is the range and extent of infestation of the oriental fruit worm? Of the Japanese beetle? Of the corn borer? Are insects and even fungi developing through successive generations a resistance to, or at least a "tolerance" of, our better known sprays and dusts?

How is science meeting, or attempting to meet, the ever-increasing severity of attacks by food crop pests? Are better weapons in the making?

These and many similar queries arise as we view the alarming spread of dangerous enemies that threaten the existence of the human race. Increased production per acre has thus far kept general attention centered on the opposite problem, that of a food surplus. But what does the future hold in promise? Can production be kept ahead of destruction?

The attempt to answer such questions is engaging the earnest thought and effort of hundreds of trained minds. Entomologists, pathologists, chemists and horticulturists in public institutions and private enterprises are at work on the problem. Co-ordination of effort in a marked degree has been secured through the machinery of the Crop Protection Institute, a non-profit organization set up some years ago for the single purpose of defending the food supplies of the human race.

Prominent in the creation of the Institute, as well as in directing the ever-widening activities of the institution in the years of its

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existence, the work of Dr. Walter Collins O'Kane is outstanding.

It is with pardonable gratification as well as with distinct pleasure that we are able to announce to the readers of this journal the addi-

tion to our editorial staff of this distinguished scientist, effective with the present issue.

Doctor O'Kane will, in his department, "In Defense of Our Food Crops," present to us a monthly review of the more important problems of crop pest control, with special reference to fruit crops.

That these problems are important none will deny. That the well-directed efforts of our research workers in attempting solution should enlist our interest and hearty support should be beyond question.

That Doctor O'Kane's monthly contributions will be read with general interest is assured by the fact that he possesses the happy faculty, rare among scientists, of being able to write and to talk in understandable language.

Doctor O'Kane is now professor of entomology in the University of New Hampshire, and chairman of the board of governors of the Crop Protection Institute.

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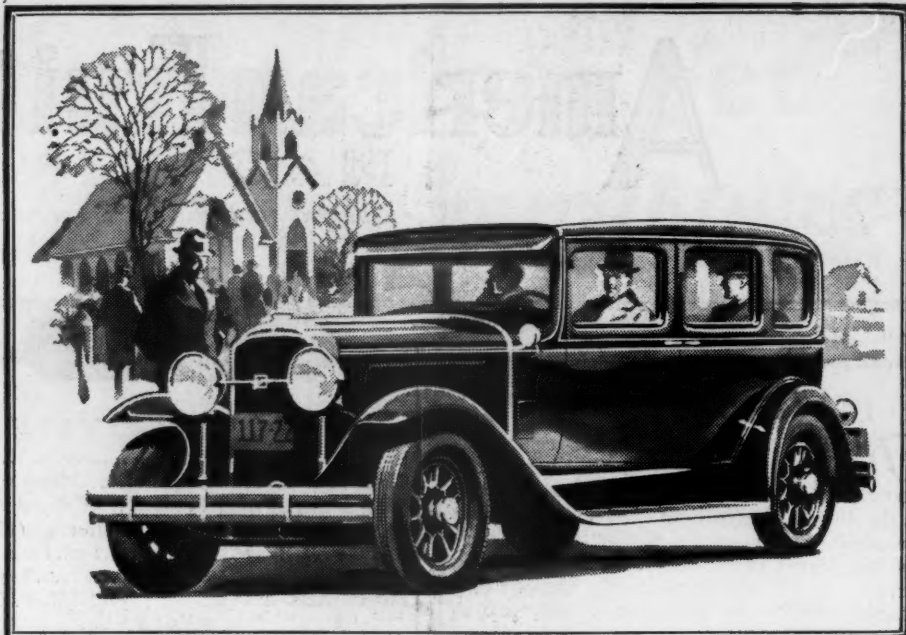
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Agricultural America—



as well as metropolitan America—
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any other car in its price range*

There must be a definite reason why men and women living on farms and in small communities, as well as in large cities, purchase from two to five times as many new Buicks as any other car priced above \$1200.

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This preference has endured for years and has reached a new climax since the introduction of the new Buicks. Month after month, in state after state, buyers have awarded Buick from 35 to 50 per cent of the total sales of the fifteen makes of cars in its field—

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These are strong statements, but the motorists of agricultural America approve them *knowing they are true*, and so award Buick two-to-one sales leadership in its field.

See—drive—and compare the new Buick. You can learn full details from your Buick dealer. He wants you as a friend of Buick because he knows Buick will be a friend to you.

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The New BUICK

WHEN BETTER AUTOMOBILES ARE BUILT . . . BUICK WILL BUILD THEM

Where cover crops grow as luxuriantly as this it is evident that phosphorus is not needed.

THE PROBLEM in present day orcharding is to secure maximum returns in dollars for the money and labor expended. The all-important point is not how much the operation costs, but what are the net returns. Cost of operation would not be of vital concern to us could we be assured of additional profits. Unfortunately, the prices of apples and other perishable crops have not been keeping pace with the cost of operation. Under existing conditions, the individual grower can exert only a minimum influence upon the prices which his product will bring. He must, for the most part, confine his efforts to an attempt to control the cost of production so that he will receive maximum returns per unit of cost.

A close study of production methods and costs holds out little hope that expenses may be lowered. As a matter of fact, it seems almost inevitable that expenses will mount instead. With an increase in cost of production, which is already nearly as large as the gross returns, how can we hope to continue the growing of apples? There is one alternative, to produce more for the money expended.

No doubt some growers have already reached the point of diminishing returns, that is, a point where the expenditure of additional funds will not increase the net returns. These growers are, as a rule, still making money from their orchards. However, there are many orchards where economic increases might still be expected. There are few cases in which there are no production leaks. The most outstanding factors in decreasing net returns are lack of soil fertility and inroads made by insect and disease pests. Where the first factor is removed, pest control is less difficult, at least the damage is less noticeable in the effect on returns.

The Use of Fertilizers

THE WHOLE fertilizer problem is one of supplying an element which is not present in the soil in sufficient quantities to produce good crops. If there is a sufficient amount of a given element in the soil in available form, there is no reason for adding it and no gain will be realized, though, as a rule, no harm will result. Where an element is not present in sufficient quantities, it must be supplied in some form of fertilizer, and a gain from the use of fertilizers is a good indication that the element in question is not present in the soil in sufficient quantities.

We have not been able to find, in Arkansas, a bearing orchard which does not respond profitably to the use of nitrogen in some form. We also believe that most of the orchards would profit from the use of phosphorus.

In fertilizer experiments with apples during the past 10 years, 250 pounds of nitrate of



But a scanty growth of ground cover is the first indication of approaching phosphorus shortage.

INCREASING ORCHARD PROFITS

By J. R. COOPER

University of Arkansas

Heavy Fertilization of Orchard Soils Together with Light Pruning of the Trees Has Proved to Be a Most Effective Procedure in Augmenting the Net Profits in Apple Production.



One of the experimental orchards in which the growth induced by fertilizers insured good annual crops.



Below. Left. Growth such as this is rarely encountered in bearing orchards in the Ozarks where fertilizers are not used. Right. One of the orchards where fertilizer experiments were carried on. Blossoms just beginning to open. Many people think this orchard is not pruned enough. We think it is.

soda have offered an average annual increase of approximately 200 bushels of marketable fruit per acre. Sulphate of ammonia was equally as effective as nitrate of soda after the first two years. No doubt there are other nitrogen carriers that are just as effective. The addition of 500 pounds of superphosphate afforded an additional increase of about 75 bushels per acre.

These increases can by no means, however, be construed as so much



gain. Besides the actual cost of the fertilizer there was the expense of hauling and applying and the cost of packing and handling the increased yield. It might easily be possible to have an increase in crop yield from the use of fertilizers and still sustain an actual loss in net returns. The average net gain from the use of phosphorus and nitrogen in the experimental orchards has been approximately \$150 and from nitrogen alone about \$100 per acre.

Fertilizers Increase Number of Fruit Spurs

INCREASES in production from the use of fertilizers are effected in an indirect way and maximum production cannot be brought about in one season. The use of nitrogen increases the percentage of "stick," i. e., the number of fruits which remain on the tree, to some extent but certainly not enough to nearly account for the ultimate increase in yield; and the size of individual fruits is not materially increased. The increase in production can be traced directly to an increase in the number of fruit spurs on the tree, and an increase in number of spurs occurs only when there is an increase in terminal growth.

Conclusive evidence has been found that trees of the same variety drop about the same percentage of fruits during the season regardless of treatments, unless the treatments are severe. It is obvious, then, that the first application of fertilizer will affect the current crop comparatively little, increasing it only to the extent of a slightly lighter drop. New spurs are formed during that period in the spring when the trees are making rapid growth and accompany rapid, vigorous growth regardless of the factors which cause it. Fruit bud differentiation does not take place until the period of rapid growth is past. This, in Arkansas, is about the middle of June. From this time on through July is the period of fruit bud formation. Since buds formed during the current season do not bloom until the following spring, we cannot expect maximum returns from the use of fertilizers until the second season.

Growth Must Be Encouraged

AN UNDER-NOURISHED, stunted tree will not bear heavy annual crops for several reasons. It does not have enough spurs and the percentage of spurs which bloom will be reduced because the number and size of the leaves are not great enough to support more. The number of fruits which set and remain on the tree to maturity is reduced for the same reason. On such trees, not only is the number of spurs reduced, but their period of production is shortened.

A comprehensive study of the performance of different parts of the tree shows that vigor in one part accompanies vigor in (To Page 23)

John Bean, so far as can be learned, brought out the first continuous-pressure spray outfit, making use of a chamber for compressed air to secure an uninterrupted stream under sustained pressure. This is the man and the outfit.



From WHISK BROOM to POWER SPRAYER

Spray Equipment Is a Development of the Last Half Century and Has Made Great Strides Since the Invention of the First Pressure Spray Pump in 1884. A Few High Points in Spraying History.

By PRESTON A. NILES

the problem in a most practical manner. The first of these men to make an important contribution was John Bean. Mr. Bean was a Yankee from Maine and is credited with the invention of the first iron well pump back in the forties. He moved to California in the early eighties and bought a 10-acre orchard at Los Gatos.

At this time James Lick, who gave the famous Lick observatory on Mt. Hamilton to the State of California, imported some trees from China, on which was found a new scale which spread rapidly over the Santa Clara Valley. Under the urge of this pest, now known all over the country as San Jose scale, Mr. Bean built in 1884 the first hand spray pump with an air chamber to equalize pressure so that continuous effective spraying could be done. This improvement added greatly to the ease and efficiency by which spray material might be applied. Mr. Bean soon found that lime and sulphur

machine going. The latter perhaps required the major portion of his time, but the sprayer did the work, to the joyful satisfaction of its owners. The Hull Brothers completed two more power sprayers the following year.

Distinctive Types of Design

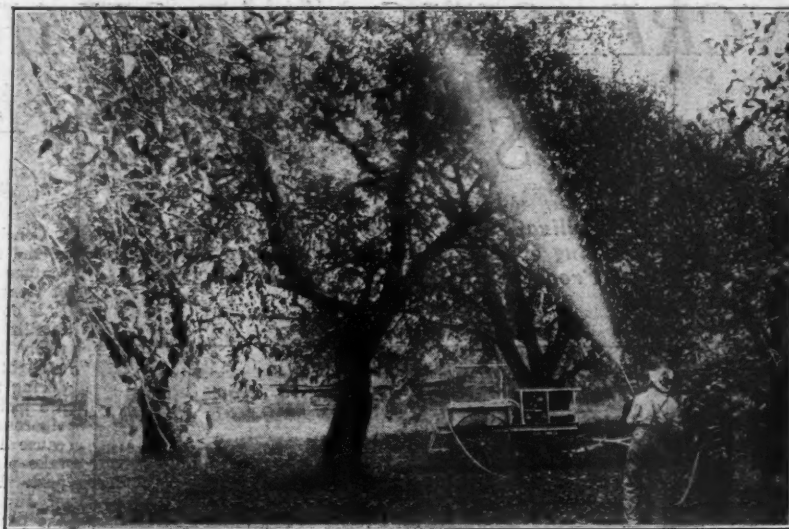
THE SUCCESS of this first power sprayer was the signal for many sprayer manufacturers to join in the work of providing the fruit industry with power sprayers. Higher pressure could be maintained with these power sprayers, and the job of spraying was greatly speeded up. Large, efficient sprayers were a necessity to our rapidly growing fruit industry, and this need has been filled by the constant addition of small, though valuable, improvements to our spray machines.

It is estimated that at one time between 1910 and 1915 there were more than 500 firms of more or less importance engaged in the power sprayer industry. Many of these companies merely bought pumps and engines of various makes and assembled them in different manners by belt, gears or chain. Most of these firms soon went out of business. A successful power sprayer demands a proper combination of power, transmission and hydraulics. Many of the early machines failed to measure up to the durable sort needed by the fruit grower and as a result passed out of existence.

Strangely enough, out of all this most interesting era of power sprayer activity, the few remaining power sprayer manufacturers have distinctive types of design for their machines. One employs eccentrics and rubber pumping cups, another employs a crank shaft with connecting rods and leather cups on the bottom of a guided plunger, while another uses a horizontal displacement pump having a so-called rigid plunger, one cylinder being opposite the other, with the use of the old Scotch yoke between the cylinders, having a frictionless roller bearing adaption of the original Scotch idea. This last design is practically original with the first power sprayer built by the Hull Brothers in 1900.

Spray Nozzles and the Spray Gun

THE IMPROVEMENT of spray nozzles has been as rapid and noteworthy as that of the spray machine itself. The common garden nozzle was probably the first nozzle used with any spray pump. In 1878, the well known Bordeaux nozzle appeared. In 1884, the popular Vermorel nozzle was invented. This nozzle was later displaced by the disk nozzle, (To Page 28)



Above. The first official test of the first spray gun, brought out in 1916. The spray gun was probably the most important forward step in liquid spraying history. Below. The first power spray outfit was assembled in 1900.

morel nozzle was invented. This nozzle was later displaced by the disk nozzle, (To Page 28)

AT THE CLOSE of the Civil War no spraying for the control of insect pests or diseases of plants had ever been done. Today highly efficient and costly spray machines are in use by fruit growers in all parts of the country. Absolute necessity for spraying, in order to raise quality fruit, has brought about the rapid development of spray machinery in the last few years.

When spraying was first practiced is not exactly known. Thomas, in his 1875 edition of the "American Fruit Culturist," which was probably the most popular fruit growers' guide of its time, does not mention the use of any real insecticide or fungicide. He does suggest the syringing of grapevines with tobacco water for thrips and a whale-oil soap wash for aphids.

Paris green is supposed to have first been used as an insecticide about 1865 or 1866, but it was not used on fruit trees until about 1875. This material was followed by London purple, white arsenic and arsenate of lead. Paris green was for a long time the most popular insecticide in use. Arsenate of lead was first used as an insecticide in 1893 in Massachusetts. It has now almost entirely displaced Paris green.

Downy mildew and other diseases of grapevines threatening the extinction of the French vineyards early in the eighties caused the development of Bordeaux mixture in 1885. This spray was developed by A. Millardet and his co-workers at the Academy of Science at Bordeaux, France. In 1886 the mixture was introduced into the United States and for many years was the leading fungicide used in this country. About 1907, Cordley discovered the fungicidal value of lime-sulphur for the apple and other tree fruits. It was first used as an insecticide in 1886 by F. Dusey of Fresno, Calif. Lime-sulphur is now our most popular fungicide. Tobacco and whale-oil soaps were early used as spray materials, as was also kerosene in a soap and water emulsion. Miscible oils were used a little later.

Early Methods of Spraying Crude

CRUDE indeed were the early methods used in applying spray solution. The first device used was the ordinary whisk broom. This consisted of merely a bundle of splints bound together. The broom was dipped into the solution which in turn was dashed upon the plant. Syringes and common sprinkling cans were next used for applying spray material. Next followed the squirt gun type of pump with a simple garden nozzle. This pump threw liquid on the down stroke only and was very inefficient. It was from this stage in spraying history that the rapid development of our modern spray machinery began.

Certain early pump builders figure prominently in the development of our spray pumps. To these men much credit must be given, for their work has been of vital importance to the fruit growing industry. In most cases these men owned orchards of their own and went after

solution was very destructive to spray equipment, even to brass cylinders, and in 1886 he built the first pump with porcelain lined cylinders.

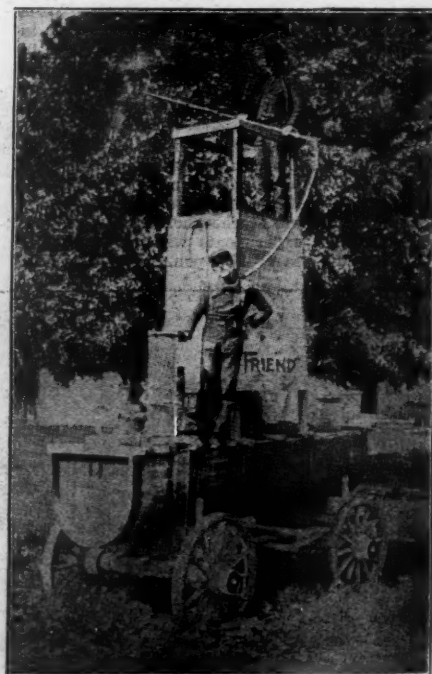
Following the early use of hand pumps, power to drive the pumps was employed by traction power from the wheel of the sprayer and by the use of a large air chamber to develop pressure. The pressure developed between trees, however, often failed to spray a large tree and so hand pumps were used as an auxiliary for boosting up the pressure whenever needed.

Among the early builders of hand and traction power sprayers was found a small firm in the village of Gasport, N. Y., known as the Hull Brothers. The Hull Brothers were successful builders of hand pumps but were determined to develop a gasoline power sprayer. The entire year of 1900 was used in developing such a sprayer. Warren N. Hull designed this first gasoline power sprayer and worked all summer building it. He died while it was being assembled in the spring of 1901. It was completed by his brothers, Arthur B. Hull and John C. Hull.

This sprayer was the first gasoline power sprayer ever made and was sold within a month after its builder's death to Sweeney Brothers of Gasport, N. Y. It was in use throughout the spraying season of 1901. One of the Hull brothers is said to have followed this sprayer through the orchards day after day for two reasons, one being to get all the information possible and the other to keep the



Left. John C. Hull, inventor of the spray gun. Right. Warren N. Hull designer of the first power spray outfit, who died before the rig was tried out in orchard use.



GROWING WALNUTS

In the PACIFIC NORTHWEST

A Thirty-Three-Year Old Industry Centered in the Willamette Valley Now Utilizing Nearly Ten Thousand Acres and Producing Upwards of Fifteen Hundred Tons of Walnuts Annually.

By C. E. SCHUSTER

Oregon State Agricultural College



A well-shaped, heavy producing walnut tree.

THE GROWING of the English walnut in the Pacific Northwest is carried on west of the Cascade Mountains and east of the Coast Range Mountains, or those mountains adjoining the ocean. Here the summers are cool enough and the winters are not too cold for the walnut to thrive at its best.

Most of the walnuts grown in the Pacific Northwest are to be found in the Willamette Valley of Oregon. Some are grown south of here, but only to a very limited extent. The amount raised in Washington is not nearly so great as that raised in Oregon. The amount raised in the whole Northwest is very small when compared with that grown in California.

Just how far north the walnut will grow is doubtful, though small plantings are to be found towards the northern part of Washington. It seems as though the walnut is now very close to the limits of its range, unless new varieties are brought out to supplement the ones now at hand. Some men are attempting to breed new kinds. The long time it takes to bring in new seedlings, and then the length of time needed to try them out, is so long as to be almost disheartening.

Industry Is Young

COMMERCIAL walnut growing is of comparatively recent origin. It was at first thought that the walnut

would not grow here at all, but some old trees are to be found that are 60 years old. These trees are very few and usually of little value, except to show that the walnut can grow here to advantage, and to a ripe old age.

The first commercial walnut orchard



Above. The Franquette walnut, an old French variety that does well in Willamette Valley. A long nut that is well sealed and filled with white meat of excellent quality.

Left. Harvest is a busy time for the walnut grower. The nuts must be picked promptly from the ground on dropping, and in most cases they are aided in falling by a good shaking of the trees at each picking.

only in the northern walnut sections of California. In Oregon and Washington the Franquette is by far the best variety known today. It is not perfect, but outranks all others so far as known.

The Franquette is one of the long nuts that is well sealed and well filled with white kernels of excellent quality. These French varieties are generally short season varieties, in that they come out into leaf late in the spring but ripen reasonably early in the fall. The fact that they do come so late in the spring is of particular value in avoiding walnut blight. The early leafing out kinds are nearly always sure to be swept clean of fruit by the walnut blight, but the later leafing ones may escape with a large part of the crop unaffected. No variety known is immune to infection by this trouble. With the humid climate and the prevalence of late spring or early summer rains, the matter of blight is vital. It practically prevents growing of the walnut along the coast.

Soil Requirements

AS TO THE type of soil that is best adapted to the walnut, or the one in which the walnut is at home, there seems to be little choice if a few requirements are met. The soil must be deep, well drained, and fertile. The soil with a depth less than five to six feet is not suited to this fruit. This depth is not necessarily determined only by rock or hardpan, but is also judged by the water table in the winter time. The soil that has a high water table during the winter is the one where the walnut tree will most cer- (To Page 29)

was planted in 1897. A few other plantings were put out a little later, and some still are producing walnuts, while many have been pulled out on account of poor location, poor soil, or other contributing factors. The success of the few that did survive was enough to encourage other plantings, so that at this time there is somewhere near 8000 to 9000 acres planted at the present time.

Only a few years ago the crops grown in the Northwest were consumed locally, but now markets have developed in the East for a nut which is meeting with approval from buyers.



NEW VARIETIES for OLD

HAND WAX has been used in grafting operations for a great many years. Its use in cold weather is not the pleasantest of occupations. In working it, the hands must be kept greased and even then they are likely to become sticky, making the change from waxing to other operations awkward.

Some growers have had much successful experience with hand wax. So long as they are satisfied and are obtaining good results, they surely are justified in its continued use.

During the last decade a brush wax has come into quite general use. Some fruit growers have tried it and discarded it because they did not have a satisfactory way of keeping it warm in the orchard.

Brush Wax and Its Advantages

BRUSH WAX has two distinct advantages. It is quicker to apply and its use eliminates the nuisance of keeping the hands greased. It also makes it quite possible to carry on grafting operations in adverse weather. Generally, when it is used, beginners have fewer of their scions perish from drying out.

The greatest objection to its universal use is the problem of keeping it warm or in a liquid stage in the orchard. It is hoped that the method of heating suggested here will simplify the problem.

There are already one or two melters or grafting pots for melting wax on the market which serve very nicely if only a few trees are to be grafted but which are wholly inadequate if you have a real job at hand. First, they generally do not hold enough wax. Second, in the windy weather that so often prevails during the grafting season, about one-half of the operator's time is spent in relighting the flame thing and waiting for the wax to melt.

Making the Wax

BRUSH WAX is usually made of five pounds of resin, one pound of beeswax, one-fourth pint of raw linseed oil and one-half pound of lampblack. The resin is melted, the beeswax added and allowed to melt. At this point remove it from the fire and if it is being prepared in the house, take it out of doors. Next, the linseed oil is added and the lampblack stirred in a little at a time. The lampblack causes it to boil up, and the removal of the whole mess from the kitchen, before the lampblack is added, will probably save an explanation to the "Boss" of how it happened to boil over on her kitchen stove.

It is now ready to be used. I have often thought that the addition of a little less than the one-half pound of lampblack recommended in the formula produced a less brittle wax. The wax should not be applied when too hot, as it may seriously injure the plant tissue. When heated a little above the melting point, it is about right for cleft-grafting work.

Keeping the Wax Warm

A VERY satisfactory way of keeping a volume of wax warm, ready to be applied, is by using a two-burner gasoline stove, such as is used by many tourists. There are several different makes on the market, costing five or six dollars apiece. Such a stove can be adjusted to keep the wax warm and seldom needs attention for four or five hours at a time.

To complete the wax-warming equipment, two galvanized pails (eight or 10 quart) and two tin cans will be needed. A batch of wax can be divided about equally in the two pails. Then, take a tin can that has previously had the top cut off, dip it into the warm wax until it is about a third full and set it up in the bottom of the pail. The edge of the tin can presents a place on which to hang the brush.

A small nail driven into the side of the brush handle makes it possible to suspend the brush bristles in the warm wax when the brush is not being used. This keeps the wax in the brush soft and the brush ready for use at any time. It also keeps the brush handle upright, out of the wax, and prevents burning off of the bristles which invariably results if they rest on the bottom of the pail.

With warm wax available, ready to be applied at any time, the whole grafting operation is greatly speeded up. At the going rate for grafting, it will increase the earning power of the man doing the work two to three dollars a day.

After scions have been set in the stocks of several trees, the wax bucket can be removed from the fire and the wax applied. The use of two wax buckets assures a warm supply at all times, as one lot is rewarming

Further Details of the Technique to Be Followed in Top-Grafting to Secure Satisfactory Results. Handling the Wax in Grafting, Treatment of the Scions, and the Final Formation of the New Head, Including the Details of Pruning.

By H. D. HOOTMAN

Michigan State College

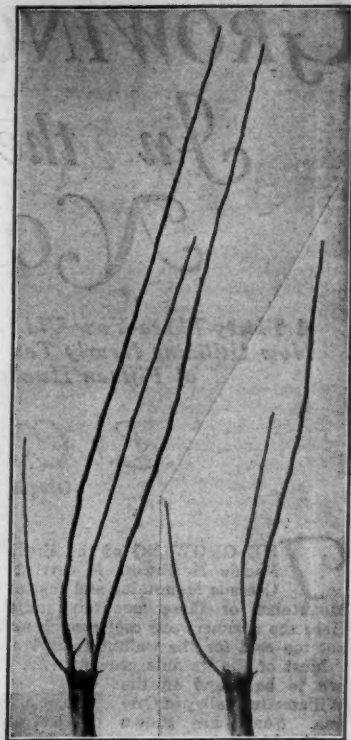


Delicious grafted on Duchess. Notice the removal of most of the scion on the right. The growth from the lower bud was left, forming a side branch.



Upper.—Pruning out the feeder branches. Three scions out of 800 set in this orchard failed to grow. Below.—The job completed. Notice the severe pruning on one scion on each stock, that the ultimate result may be good unions and a shapely, well balanced head.

When first removed, the wax contained in the can is generally several degrees cooler than that in the bucket. This fact makes it advisable to start using that from the can, letting the wax in the bucket cool a little before applying. Further, as the wax cools, that in the can remains warm the longest. This often makes it possible to cover the stocks on another tree or two by again using wax from the can before returning the bucket to the fire for reheating. This is one of the advantages not found in a wax warming outfit in which all the wax is kept in one receptacle.



A Wealthy stock that was grafted to Northern Spy. One year after the scions were set, before and after pruning.

Waxing the Scions

FAILURE of grafts to set usually occurs from drying out or the careless setting of scions.

I have found it good practice in waxing to first apply the warm wax to the top of the stock, letting it flow down into the cleft—forcing all air out. After the top of the stock is thoroughly covered, apply wax to the split sides of the stock. Make sure

that no bark cracks are left exposed where air may get in and dry out the scion. Next place a band of wax around the top of the stock, securely covering any bark that may have been roughed up or torn with the saw. If in the operation the lower buds on the scions become covered with wax, don't worry, there is no damage done. It may even serve to protect them from climbing cut worms. A dab of wax on the top of each scion completes the waxing job.

Waxing is very important and unless it is carefully done, the best job of grafting may prove a failure. Keep plenty of wax on the brush. A small round brush or a flat one an inch or less in diameter will be found very satisfactory for applying the wax.

Pruning the Grafts

THE CAREFUL pruning of the grafts and the judicious removal of the "feeder" branches the first and second year after the grafting operation is started determines whether or not well-shaped trees will result.

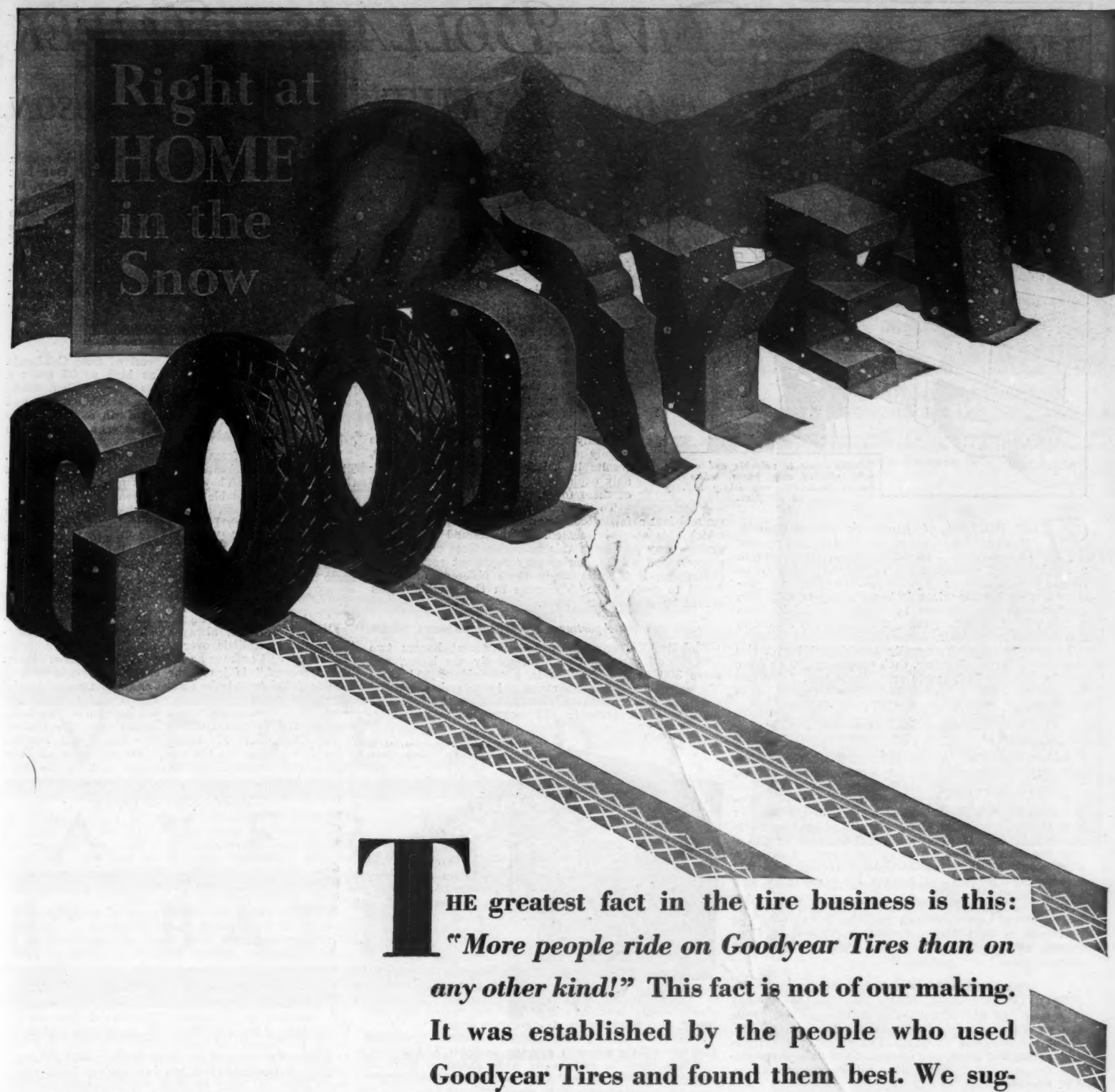
If two scions make about an equal amount of growth and both are allowed to grow, a V-shaped or sharp angled crotch is formed at the point of union. The failure of one scion to grow or the complete removal of it the year the grafts are set often results in shriveling or dying back of the bark on the side of the stock containing the grafts, causing a poor union, as there has been nothing to encourage the flow of sap or continued

growth on that side of the stock.

The judicious pruning of the scions eliminates sharp-angled crotches and assures good unions. After the scions have made one year's growth, each stock should be inspected and one scion selected—by reason of its growth or location—as the one that will become the permanent branch. It will generally not need any heading back unless it has made a growth of over 30 inches. The other graft should be cut back severely (to six or eight inches) leaving just enough

growth to keep its side of the stock alive. Keep this smaller graft subdued by pruning until the stock is completely healed over by the increased growth of the permanent branch. The weaker (To Page 21)





Tread and carcass: these are the two main parts of a tire. There is greater traction in the Goodyear All-Weather Tread. There is greater vitality in the Goodyear Supertwist carcass. Evidence? Any Goodyear Dealer will demonstrate. Proof? "More people ride on Goodyear Tires than on any other kind!"

THE greatest fact in the tire business is this: "More people ride on Goodyear Tires than on any other kind!" This fact is not of our making. It was established by the people who used Goodyear Tires and found them best. We suggest you try Goodyear Tires on the basis of this fact. Now is a good time to buy them. Whether you drive on icy streets, frozen highways, in mud or sand, or under ideal conditions, you will find them superior, by a margin great enough to have given them the largest sale in the world. Buy now. All-Weather is a Goodyear term, and a precise one. Goodyear Tires stand up in hottest summer. They are right at home in the snow,

FIVE DOLLARS a WEEK for FRUIT By CARL NELSON



Display space is valuable and can be fully utilized with boxes, while the bushel basket is very likely to stay on the floor.

THE EDITOR of AMERICAN FRUIT GROWER MAGAZINE has asked me to tell the readers of this journal something about fruit sales in a neighborhood grocery store of the present day as compared with sales of 15 years ago. In order to appreciate any such comparison it is necessary to take into consideration the changes in other lines of business during this same period, changes that amount almost to a revolution in methods.

Fifteen years ago, generally speaking, all groceries were "neighborhood" stores, each supplying 200 or more nearby families with staple groceries, meats, dairy and poultry products and such fruits and vegetables as were then to be had.

From \$75 a Year—

FOR THE purpose of comparison, let me picture the "average" weekly food bill of the earlier days. I am depending on recollection, not on figures, but the picture, I believe, is fairly correct.

Then the average expenditure for the week's groceries and meats would run about \$12 to the family: about \$5 for meats and \$7 for groceries, including fruits and vegetables. If a family spent as much as \$75 a year for fruit, it was an exceptional case—a dollar a week would be closer to the general average, and this included the berries and peaches for canning as well as the grapes for jelly.

In those days the retail grocer bought his apples as needed by the barrel and sold them out by the peck and half peck to such customers as asked for them. The general average price, as I remember, was about 35 cents a peck.

—to Five Dollars a Week

TODAY an average family uses considerably less meat but will pay probably \$7.50 per week, while the week's cost for groceries will run close to \$15, about three-fourths of which will be spent for fruits and vegetables, fresh and canned. Among our customers, the expenditure for fruits, including canned fruits, will average about \$5 a week.

The home canning of fruits has practically ceased, although a fair amount of grape jelly is still put up at home, and the quantity made shows no noticeable lessening from year to year. The reason for this may be found in the living habits of the present day. Most families in Chicago live in apartments where the only available storage is the refrigerator. Canned fruits require a cool place for storage; jellies do not.

"Chain Store" Competition Beneficial

IT WILL BE necessary at this point to briefly outline the change which has taken place in the grocery business due to the advent of the "chain" grocery store. This system introduced a condition into the retail food business which thousands of grocers of the old day failed to meet, and for several years it seemed the days of the independent neighborhood grocer were numbered, that ere long he would be as extinct as a dodo.

But many, especially of the younger generation, did not take this view. Instead, they got together, studied the situation, met the new conditions and are finding that a properly managed retail food store that really serves its neighborhood is a better, more dependable business proposition than ever before.

Machine Era Lightens Diet

CONDITIONS have changed radically in every line of business. Common sense tells us that they will continue to change. One of the most important changes that has affected every branch of business is the in-

An Operator of a "Neighborhood" Grocery Store Makes Some Interesting Observations on Fruit Sales of the Present Day as Compared with Former Years. Some Comments on Packages, Changes in the Popular Diet and Its Effect on Fresh Fruit Consumption.

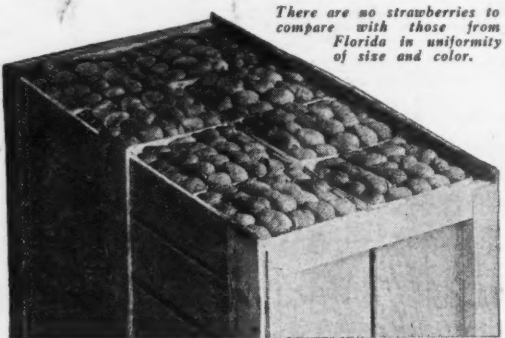
creasing use of labor-saving machinery. This has had an especially interesting effect on the diet of the people in general.

When in bygone days considerable muscular effort was required in the performance of the average task, heavier foods were required, especially meats and meat products. With the steadily lessening demand upon human muscle, people generally are finding a lighter diet, one largely made up of fruits and vegetables, results in better health, and this probably explains the heavy increase in sales of these foods.

To this rather sketchy introduction, let me add just a few words describing the neighborhood in which this store is located. I understand that other articles may appear in this magazine from other retail grocers, and as the stories may represent some sharp differences, it is quite likely these differences will be found to rest on the differences in the neighborhoods served by the various stores.

An Apartment Neighborhood

WE ARE surrounded by apartment houses two and three stories high, mostly the latter, and serve 300 to 400 families in a "neighborhood" three blocks square. The apartments in this neighborhood are four to six rooms and rent from \$60 to \$100, with an average of probably \$75 monthly. The rental in-



There are no strawberries to compare with those from Florida in uniformity of size and color.

cludes steam heat in winter and hot water the year round. Ice refrigeration is mostly in use.

Family incomes in this neighborhood run from \$35 to \$100 weekly but will average probably \$50 a week.

While there is an equally wide variation in living costs, the picture set up at the beginning of this article may be accepted as a fair average.

Strawberry Sales Start in February

WITH OUR trade, the strawberry sales begin along in February, when southern berries can be retailed at 60 cents a quart. In most years this price will shortly be reduced to as low as 40 cents within a month and then not infrequently, due to falling off in shipments from one southern locality before the berries from another southern locality are to be had in volume, the price will go back up to as high as 80 cents a quart. But people who have started eating strawberries continue to buy them at the latter price, although they would not start in the season if the price were as high as 50 cents. When the price

We are surrounded by apartment houses two and three stories high, mostly the latter, and serve 300 to 400 families in an area three blocks square.

for the early berries is around 40 cents a quart, they sell very freely. Our best berries come from Florida, Kentucky, Indiana and Wisconsin, those from the latter States being the best, though there are no strawberries that can compare with those from Florida in uniformity of size and color. Louisiana, Missouri, Tennessee and Michigan berries are poor, those from the latter two States exceptionally so. Washington is sending a splendid late season berry that sells readily at 20 to 30 cents a pint.

Raspberries Sell by the Pint

RED RASPBERRIES are received from California in early spring and sell as high as 35 cents a pint, though rather slowly at this figure. When stocks can be secured from Indiana, Tennessee, Wisconsin and Michigan in sufficient volume so we can retail at 18 to 20 cents a pint, we can seldom get enough to fill the demand.

Blackcaps come from Michigan and southern Illinois. The price for blackcaps is usually just a dollar less than for the reds. They are not as much in demand.

The most dependable fruit for year around sales is, of course, the orange, and the "Sunkist" orange is the only fruit for which I have ever had customers ask by name. But "Sunkist" we have found to be merely a trade name and not a mark of quality, as there is as much variation in the packs to be had under this trade name as there is in neckties.

How the "Sunkist" Varies

FOR INSTANCE, there is the "Colonel" pack, always uniform, always high grade, and, if anything, always a little over size. The 176 pack under this brand will average as large as 150s of most others. The "Moomah" is just near enough to grade and to quality so the fruit looks almost as good as the "Colonel." But there is usually \$2 a box difference in the auction price. The "Shamrock" pack is scandalous. The boxes marked 176 contain fruit no larger than the Colonel 216s. True, there are only 176 oranges in a box but there is no bulge to the box. Yet all three of these brands are "Sunkist" oranges, each bearing the name printed in red.

Canned Grapefruit Popular

PEOPLE generally appear to have acquired the grapefruit habit and during the past year the sales of canned grapefruit have increased 500 per cent without noticeably affecting the sales for the better grades of fresh grapefruit. Our favorite size in the fresh grapefruit is the "64" but there is very little margin in this fruit for the retailer.

With our trade, the consumption of grapefruit is increasing at the expense of the pineapple, as our sales of this canned fruit have fallen off practically in the same proportion as our increase in sales of canned grapefruit.

Banana Sales Fluctuate

I CANNOT SAY that I have seen any noticeable increase in the sales of bananas during the past five years. They sell freely in the winter and in between the seasons of other fruits. Children like them and they are, or at least were, much used in the putting up of lunches. But less lunches are being put up every year. It may be that more bananas are being used on the table and the constantly shrinking number of carried lunches has taken up this increase with our trade so that we have not been able to notice it. It is true the banana is largely used with other dessert fruits, but whether the banana stimulates the sales of these fruits or whether it is just the other way round, I am not prepared to say; I have no way of knowing. The retail price fluctuates during the summer as much as 25 cents from low point to high without (To Page 21)



THESE 89 CHANCES FOR TROUBLE ARE ELIMINATED IN EVEREADY LAYERBILT "B" BATTERIES

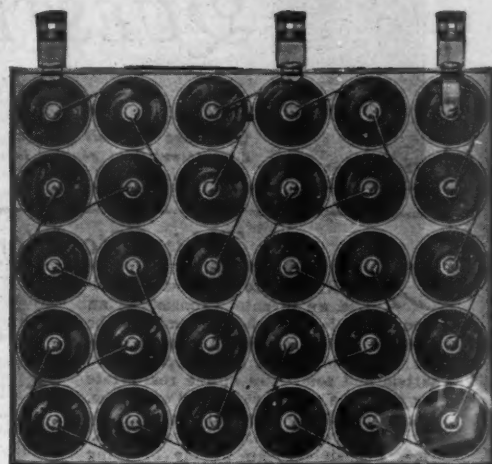
IT TAKES 60 solderings and 29 tiny wires to keep the 30 individual cells of a non-layerbilt "B" battery in working order. These 89 weak spots have been done away with in the Eveready Layerbilt "B" Battery, exclusively manufactured and patented by National Carbon Company, Inc.

Study the two diagrams and you'll see where the difference comes in. Eveready Layerbilts are constructed of flat cells, packed together tightly, and occupying every cubic inch of space in the battery. All "honey" and no

"comb." Contact is direct, cell to cell. Only five soldered connections are necessary in the Eveready Layerbilt. And these are made with thick metal bands, each $\frac{3}{8}$ inch wide.

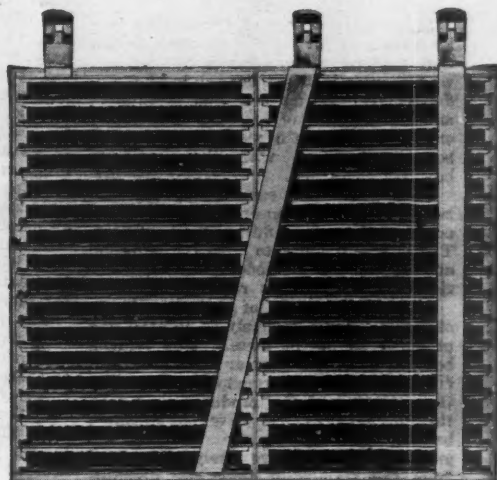
That's the why of longer life and greater dependability of Eveready Layerbilt "B" Batteries. Only Eveready builds them.

There are two sizes, Medium and Large. The cost of either is only a few cents more than that of the cylindrical cell Eveready of the same size. And the battery will last from 25% to 30% longer. When you buy "B" batteries



CYLINDRICAL CELL CONSTRUCTION

Diagram illustrating the construction of a cylindrical cell "B" battery. Two solderings per cell, or 60 in all, and 29 fine wires—89 chances for trouble. Note waste spaces between cells.



EVEREADY LAYERBILT CONSTRUCTION

Diagram illustrating the simplicity of the Eveready Layerbilt construction. Only two broad metal bands and only five soldered connections. No waste spaces. It's all battery. Layerbilt construction is an exclusive Eveready feature. Only Eveready makes Layerbilt Batteries.



This is the original LARGE SIZE Eveready Layerbilt No. 486 for heavy duty—price \$4.25, only 25 cents more than the Eveready Cylindrical Cell Battery of the same size, No. 770. There is another Eveready Layerbilt in Medium Size No. 485—price \$2.95, only 20 cents more than the Eveready Cylindrical Cell "B" Battery No. 772.

insist on Eveready Layerbilts. They mean longer life and greater satisfaction to you.

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TUESDAY NIGHT IS EVEREADY HOUR NIGHT. East of the Rockies—9 P. M. Eastern Standard Time, through WEAF and associated N. B. C. stations. On the Pacific Coast—6 P. M. Pacific Standard Time, through N. B. C. Pacific Coast network.

EVEREADY Radio Batteries



QUESTIONS and COMMENT

Conducted by T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 2c stamped envelope (air mail 5c). Address AMERICAN FRUIT GROWER MAGAZINE, 53 West Jackson Blvd., Chicago.

Taking Stock for 1930

ACCORDING to the best authorities, an inventory consists of an account, catalog, or schedule made by the owner, operator, or manager of a business or establishment of the goods and chattels and sometimes of the real estate over which he may have control or charge. It may include an itemized list of goods or valuables with their estimated worth.

Every business man worthy of being classed as such keeps some sort of accounts and makes an inventory at the beginning of each year. Some fruit growers and general farmers check up annually on their affairs. It is a regrettable fact, however, that a large percentage of those who produce fruit crops make no effort to keep accounts to determine losses, profits or dividends at the beginning of the new year.

Since the producer of crops today is a business man for exactly the same reason that the grocer, banker and clothier are, why shouldn't those engaged in the production of crops make annual inventories and cost accounting records? The object or purpose of such work is to become better acquainted with the particular business concerned.

Inventories and cost accounting tell how profitable or unprofitable the business may have been during the past year. The check-up tends to take the slipshod and haphazard methods out of production. Guess work is replaced by facts.

Moreover, a study of such inventories and cost records is likely to interest the producer in his business. This is true because many different angles of the production work are brought forcefully to the attention of the producer in a way that perhaps he has never appreciated before. The greater the interest, the greater the profits are likely to be, and from this standpoint alone cost accounting and inventories are likely to pay big returns.

Scope or Extensiveness

PERHAPS the producer of horticultural crops cannot afford to keep books, watch costs, maintain a budget and husband labor-time as carefully as the average merchant or manufacturer does. That there is a valuable place for the improvement of such work on farms, nearly all will admit. Certainly some simple way of keeping accounts should prove worth while. The making of a careful survey of all materials, equipment, land, livestock, etc., ought to be worth equally as much.

It is necessary to study the records and figures kept in order to tell what they mean. In January nearly every producer has time during bad weather to do some figuring and thinking. In fact, if more thinking about work and accomplishments of the past year is given, it may prove to be the most profitable work of the whole year. Head work has always paid the highest wage, and we have every reason to believe that it will continue to do so.

The days of cheap lands and rents and practically self-sustenance on the farm have passed. This is a business age, and the farm is becoming more and more commercialized. When modern business methods are more widely adopted on the farms, agriculture generally will assume a more important role. The fruit grower is a user of capital and labor like every other business man. If he is to succeed, he must make his investments not only pay costs but overhead charges as well, and in addition to these a fair dividend.

To a greater extent than at any previous period, the grower is required to associate with other business men. He must be able to form agreeable and satisfactory contacts with his fellows and have a spirit of co-operation. In fact, teamwork is now playing an important part

in every kind of business, and perhaps no business offers greater opportunities for group action than the business of producing horticultural crops.

What the Inventory May Show

THE RESULTS of the inventory may show that the crops relied upon to be the best money-makers may actually prove to be the poorest ones. More or less machinery and equipment may be needed. The labor item is almost sure to give the producer great concern, as it will in most cases be much higher than anticipated. Many farm leaks will come in for due and careful thought and consideration. With all the facts before him, the producer should be in a much better position to rearrange his operations, if changes are deemed necessary. He can also proceed with greater certainty because of the facts and figures at hand.

Taking stock and the study of accounting records may cause dissatisfaction among those in charge of operations. Such dissatisfaction may, however, prove to be a healthy situation, as we make progress through a desire to do better. Nothing is apt to show our thoughts, mistakes, and shortcomings so clearly as an accounting and inventory system. The desire thus created to do better the next year is almost sure to be a stimulation to greater efforts and consequently resulting increased profits.

The facts developed may clearly indicate, as they have in many studies made by agricultural experiment station workers throughout the country, that a judicious system of horticultural crop diversification pays the biggest returns. Moreover, that the highest acre yields at the lowest possible cost makes the bank account larger. Such fundamental facts may have been heard many times, but they are rarely as impressive as when brought to the foreground by a practical and workable survey and check-up.

Taking Stock of Yourself

THE FRUIT GROWER that takes stock of himself as well as of his goods and chattels may find the following to his credit:

1. An abounding faith, in the importance of the fruit industry.
2. An unlimited patience and perseverance in overcoming obstacles and difficulties.
3. An infinite amount of tact and good judgment in meeting and handling trying situations.
4. An enlarged vision of the importance and value of the work to be done.
5. An indomitable courage and determination to stand for the right and work for the completion of the task.
6. An unquenchable optimism in spite of all opposition and discouragements.

Fertilizers for Apple Trees

I have a small apple orchard. The soil seems to be very thin. Stable manure costs so much that I shall use some kind of commercial fertilizer to enrich the soil. What kind of fertilizers are best suited for apple trees?—B. H. M., Kentucky.

IN ORCHARD SECTIONS where it has been found advisable to fertilize trees almost every year, the following approximate amounts of nitrate of soda or its equivalent in other nitrogen carriers are generally used: One-quarter pound on one and two-year-old trees, and one-half to one pound on three-year-old trees. These amounts are then gradually increased from two to four pounds for six to 10-year-old trees, and five to 10 pounds for trees ranging from 15 to 30 years old. It should be understood, of course, that the amounts given should serve only as a guide. It is important in this connection that the tree be fertilized according to its needs.

The best results are generally secured by sowing the fertilizer broadcast on the ground under the spread of branches about two weeks before the blooming period of bearing trees.

In stimulating a better growth of young trees, we suggest that in addition to fertilizing you adopt a system of cultivation, beginning early in the spring and continuing cultivation at intervals of about two weeks up until about July first, when you may sow a cover crop of cowpeas or soybeans. This crop will grow up and cover the ground, add nitrogen to the soil, and, if let lay on the ground through the winter, will protect the soil from erosion and tend to hold moisture. By such a cultivation and cover crop system, you should be able to gradually build up the nitrogen and humus content of the soil and in turn make the orchard more profitable when it comes into bearing.

Fall Fertilizing Not Advocated

Could you give me any information in connection with the autumn manuring of apple trees with nitrates which was mentioned in your magazine a long time ago? I understand that it was experimented with, but I have never heard of any definite results, whether it was beneficial or otherwise.—N. W. W., New Zealand.

SOME INVESTIGATORS have endeavored to correct the biennial bearing of certain varieties of apples by omitting the application of nitrogenous fertilizers like nitrate of soda and sulphate of ammonia in the spring of the crop year. Favorable results seem to follow the application of these commercial fertilizers in both the spring and fall of the off year. It is believed that the spring fertilization in the off year might reduce the carbohydrate content of some fruit spurs and thus prevent many of them from forming blossom buds for the next year's crop. Moreover, it is believed that fall fertilization tends to cause these same spurs to have a higher carbohydrate content the next year and thus form fruit spurs in spite of a crop on the other spurs.

To omit the application of a fertilizer in the spring of the crop year would tend to decrease the set of fruit at least on weak spurs, and this might tend to help correct the heavy bearing during that year on all spurs.

Until more information is obtained regarding the application of fertilizers in the fall, growers should not adopt the practice, except possibly with a few trees in an experimental way. It is much safer to follow the usual practice of early spring fertilization where fertilizer is needed.

Fertilization studies in some regions have shown that it may be desirable to apply a part of the nitrogen in the spring and part in the fall each year. Like the other problem, however, this needs further investigation before growers in all regions should adopt such a practice except in an experimental way.

P. D. B. for Peach Tree Borers

Would you please advise me how to obtain the best results with the peach tree borer gas called "Paraside." I used one ounce to the tree on trees four and five years old. I applied it the middle of September.—G. E. S., Pennsylvania.

PARADICHLOROBENZENE gives the cheapest and the most effective control of peach tree borers. It may be applied safely to trees five years of age or older, but it may be dangerous to use on trees less than five years old. These younger trees must be wormed by hand if infested with borers. For best results, PDB (paradichlorobenzene) should be applied between September 20 and October 10. Grass and trash should be removed from about the base of the tree and three-quarters to one ounce of PDB placed in a closed ring about two inches

from the base of the tree. This is covered with two or three inches of soil, which is then firmly pressed down with the foot or back of a shovel.

PDB costs from 18 to 35 cents a pound. The total cost of application, including labor, will vary from three to five cents a tree. Chemical concerns handling spraying materials are often able to supply growers with PDB. Local drug stores may also handle the product. This treatment should not be extended to fruit trees other than the peach, as it is likely to cause serious injury.

The Youngberry

I am interested in the "Youngberry." This seems to be a cross between the Loganberry and dewberry. It is highly spoken of in California. I am wondering if it will stand the climate and not winter-kill in our section, where it sometimes drops down to zero.—J. H. G., Maryland.

IT IS TRUE the Youngberry is said to be a cross between the Loganberry and the Texas wild dewberry.

All reports indicate these berries have been profitable when grown in Texas, California, Oklahoma, North Carolina, and other sections of a somewhat more moderate climate than yours.

For your State, it is believed that this fruit may be hardy, but, to be sure, it would be well to make a test and to plant only a few vines at the beginning. We now have the Youngberry growing on our station grounds in Missouri, but as yet they have not passed through a winter, and we are unable to give definite information as to the hardiness of this berry for our Central States conditions, or, where, as you suggest, a temperature somewhat below zero may be experienced.

Rotting of Plums

I have some plum trees that I bought for German plum trees. They bear a full crop every year, but the fruit begins to rot just before ripening time. What can I do to prevent this?—R. H. T., Kansas.

NO DOUBT you can prevent the rotting of the fruit of your plum trees by careful and timely spraying, making the first application just before blooming time, the second when about two-thirds of the shucks, or husks, have dropped from the young fruits, and additional applications at intervals of about two weeks up until within four to six weeks of harvest time, making in all perhaps four or five so-called summer applications.

You may use for spraying your plums self-boiled lime-sulphur, any of the ready-prepared mixtures manufactured by spray chemical concerns and particularly designed for the spraying of stone fruits, or you may use dry-mix sulphur lime spray. This mixture may be made as follows:

64 per cent superfine (dusting) sulphur	
32 per cent dry hydrated lime	
4 per cent dry calcium caseinate	
To make 50 gallons of spray mixture use:	
Sulphur	8 pounds
Hydrated lime.....	4 pounds
Calcium caseinate.....	8 ounces

The above amounts may be proportionately increased or decreased to meet the capacity of any particular spray tank.

Leasing an Apple Orchard

I have an apple orchard of about 30 acres, about two-thirds Jonathans and the rest Ingrams and Black Bens. I am thinking of leasing it out for about five years to a neighbor who is a good hand at apples and has a good outfit. What share do they generally give to a person for taking care of an orchard, if he furnishes all the spray material, fertilizer, etc., and does all the work up until about August 15? Then, if I also desire him to market my share of the crop, what should be allowed for doing this work? He would furnish the containers and do all the picking, packing, etc. I live about 30 miles from Kansas City and most all of our apples are sold there. If I should desire to buy his share of the fruit on the trees, what allowance would have to be made? The orchard is in good shape except that it needs a moderate amount of trimming.—D. W. P., Missouri.

BEARING apple orchards are leased for varying amounts as cash rent and crop rent. In each case the exact amount of rent depends upon the possible returns or yields.

The party leasing the orchard may deliver at the packing table from one-fourth to one-half the crop to the orchard owner. If cash rent is paid, it may amount to anywhere from \$5 or \$10 up to \$50 or more per acre. Moreover, it is usually customary to receive as rent a less

amount for the first year or two of the leasing period, although this is not necessary.

In case the party leasing the orchard markets the crop, he may receive as extra pay the cost of containers and labor required to handle the rent crop.

Where the owner buys the crop on the trees, deductions for cost of harvesting, packing, containers, storage and shipping may be made.

Rodent Control

Rodents are very bad here, especially the "pocket gophers," though we have tried many things and yet do not gain much on them. We have used poisons, such as strychnine, barium and squill, as recommended by the Department of Agriculture, also a virus, without noteworthy success. We sowed the orchards in Lepedeza and Bermuda, hoping the gophers might use these roots instead of the apple roots, but they seem to prefer apple roots. We tried deep plowing and turning water into their holes, also dynamite and gas. All these measures helped some, yet in spite of all we can do they get on an average of a dozen trees every year, often the very largest and finest bearing trees. Perhaps you can suggest something more effective which also would not involve prohibitive expense. Any suggestions will be thankfully received.—F. E. B., Oklahoma.

THE POCKET GOPHER is controlled either by poisoning or trapping. One of the best poisons recommended, in a general way, is made by the following formula: Sweet potatoes, parsnips, or carrots, four quarts; flour paste, one-fourth pint; strychnine alkaloid powder, one-eighth ounce; and saccharin, one-thirty-second ounce.

The vegetables should be cut into pieces not smaller than three-quarters of an inch, so that the gopher will not be able to pocket or store them, but will eat them immediately. The strychnine and saccharin should be stirred into the cooked flour paste and poured over the vegetable cubes, stirring to insure uniform mixture. A pointed steel probe, or stick, is thrust into the ground at intervals about a gopher exit hole until the main runway is found. One cube is dropped into it and the hole is closed by tamping with the heel of the shoe. The operation should be done when the ground is damp, in order that a probe may be used. It is also well to kick down the mounds over the exit holes, in order that the remaining gophers can be located when they make fresh mounds. Especially constructed traps which fit into gopher holes may also be used effectively.

Carbon bisulphide is used in destroying gophers and other rodents. The pure liquid may be exploded in the burrows or may be used in a pump known as the "destructor pump."

By the first method, a tablespoonful of carbon bisulphide is poured on a ball of cotton waste, a corn cob, horse manure, or other absorptive material and pushed as far into the burrow as possible, the opening being immediately plugged with earth. Some authorities recommend the explosion of the gas with a torch before the hole is plugged. On account of danger of fire, this work should be done with caution.

Selecting a Site

I have a small apple orchard which I planted as an experiment. It is in quite flat territory at an elevation of about 935 feet above sea level. I am intending to plant a much larger orchard and would like your advice on the selection of a site. Is there any definite elevation above the surrounding territory that would be considered correct? I have three sites which I am considering. The first site is at an elevation of about 930 feet. The land to the west slopes down about 40 feet in 3000 feet. The land to the east slopes down about 30 feet in 3000 feet. To the south there is a slight slope down, and to the north, up about 10 feet and then down about 40 feet in 1000 feet. The second site is on top of a long ridge at an elevation of about 1120 feet, sloping down to the west about 220 feet in two miles and to the east about 200 feet in three miles. The third site is at an elevation of about 1260 feet, sloping down to the west about 300 feet in one-half mile and to the south and east about 300 feet in one mile. To the north it slopes down about 60 feet in one-half mile and then is about level. I would prefer the first or second site. However, I feel that the first is not suitable and I believe the second is fair. The third seems to me to be quite good, but I prefer to have other opinions before deciding.—V. V. S., Ohio.

UNLESS experience and observations extending over a period of five years or more have shown that the fruit buds of apple trees are injured mate-

rially by late spring freezes and frosts on the land situated at an elevation of about 930 feet, it is my opinion that either your first or second site should prove satisfactory.

Frost injury to the fruit buds in early spring may be more dependent upon a lack of proper air drainage or the occurrence of the so-called frost pockets than it is upon any particular or exact elevation above the surrounding country. On account of the danger of frost, however, it is usually not advisable to plant

orchards in low, narrow valleys or even low down on the adjoining hillside.

The soil fertility, the accessibility of the land, and its smoothness as regards the operation of orchard machinery should be given consideration. These factors may be more important than the frost hazard.

If, therefore, your third orchard site measures up properly as regards these factors enumerated and still has the advantage in elevation, then it may be the best orchard site.

Bluish Tinted Dust on Raspberry Canes Not Harmful

I recently planted some Cumberland raspberry bushes and I notice they are covered with a purple or bluish tint which when wiped off comes back again. Can you tell me if this is the disease called "blue stem"? The stems otherwise look healthy.—J. C., Massachusetts.

THE PURPLE or bluish tinted dust which you describe on the canes of your Cumberland raspberry vines is (To Page 20)

Dollar-Making Experiences in High-Speed Farm Transportation

READER, NOTE: This is the sixth of a series of Farmers' and Fruit Growers' Personal Experiences, relating to the Profit Side of the high-speed haulage of farm products and live stock, which should be of especial interest to those who recognize the all-important part the SPEEDY MARKETING of farm products plays in making farming PAY.



"Driven 157,000 Miles —And It's Never Missed a Day!"

REPAIRS HAVE COST ONLY \$119.72"

**"Reo Motor Car Co.,
Lansing, Michigan
Gentlemen:**

It might interest you to know that I purchased a two-ton Reo Speed Wagon four and one-half years ago and have run it 157,000 miles with a repair cost of \$119.72. As I have a milk route, it is necessary that this truck be on the road every day. The repair work that it needed was done in the evening, therefore it has not missed a day. Needless to say that when I need a new truck, I will purchase a Reo Speed Wagon.

You can use this letter as a testimonial if you wish.

Sincerely,
Frank Michels,
Loveland, Ohio."

REO pioneered trucks for farmers—trucks specially designed to meet farming needs in speed, capacity, economy and long life.

The result has been that whenever farmers get down to figuring actual hauling costs—to figuring how little good transportation costs—they buy Reo Speed Wagons.

Reo's present-day Speed Wagons offer farmers an even greater measure of economy and long life. Based on Reo's long experience in this field, these Speed Wagons for farm use are designed to master today's farm hauling conditions.

They offer farmers the most flexible of transportation—increasing hauling radius—shortening the haul from farm to more profitable distant markets. And they offer tremendous advantages in speed with safety for load and driver.

Yet Reo engineers have done more than adding these new performance factors to Speed Wagons. They have made these qualities even more lasting than before.

Chrome nickel alloy cylinder block—the hardest of all cylinder materials; new low expansion, longest lasting aluminum alloy pistons—an exclusive Reo formula—outwearing 3 ordinary pistons—in fact, every improvement in design and manufacture that could

lengthen life and increase efficiency has been added. 6-cylinder engine; 7-bearing crankshaft; full pressure lubrication; 4-wheel 2-shoe internal expanding hydraulic brakes; 4-forward speed transmission; Myers built-in magazine chassis lubrication; only the very best tires, and other features are part of Speed Wagons for farm duty.

See these Speed Wagons before you buy any truck. Prove for yourself that Speed Wagons will handle your hauling faster and cheaper—mile after mile—for an unbelievably long, trouble-free life.

REO MOTOR CAR CO., Lansing, Mich.

General Utility Speed Wagon with curtains express body. Six cylinders, 4-wheel, 2-shoe, internal expanding hydraulic brakes. Handles its capacity load of 2,000 lbs. with ease—swiftly and economically.



Reo Speed Wagon with school bus body. Speed Wagons are meeting with great success throughout the country in this service.

Speed Wagon 1½-ton capacity with express body. 6-cylinder engine designed for fine performance and economy of operation. 4-wheel, 2-shoe, internal expanding hydraulic brakes give positive safety.



EVERY SIZE FROM 3 TONS
DOWN TO STORE DELIVERY MODELS

REO
LONG LIFE
206-R
SPEED WAGON
GOOD FOR 100,000 MILES

"Richared"

Reg. Trade Mark

The Delicious Supreme

The World's Most Wonderful Apple. The "Super" Delicious. An Apple with all the good qualities of the Common Delicious. Same size, same shape, same flavor, same texture and same ripening period.

But—

The Richared Delicious colors two or three weeks earlier and Colors Solid Red (without trace or sign of stripe) even into the stem or blossom ends! It can be picked hard ripe with full color. It has excellent storage qualities and is the most beautiful, glorious Apple ever seen.

Write for our 48 page Planter's Guide which will tell you more about this New Apple and other new varieties.

TITUS NURSERY CO.
WAYNESBORO, VA.

KINKADE GARDEN TRACTOR

and Power Lawnmower

A Practical, Proven Power Cultivator for Gardeners, Fruit Growers, Truckers, Florists, Nurserymen, Suburbanites, Country Estates and Poultrymen.

New Low Prices—Easy Terms
AMERICAN FARM MACHINE CO.

1034, 33rd Ave., S. E., Minneapolis, Minn.



IN DEFENSE OF OUR FOOD CROPS

Conducted by

WALTER COLLINS O'KANE

Chairman, Board of Governors,
THE CROP PROTECTION INSTITUTE



The Warfare on Fruit Pests

THIS MONTH of January an important meeting is taking place at Orlando, Fla., in which every reader of AMERICAN FRUIT GROWER MAGAZINE is interested. It is a joint conference of the United States Plant Quarantine and Control Administration and the National Plant Board. Its purpose is to discuss State and national measures intended to prevent the introduction or spread of further dangerous insect pests or plant diseases.

Quarantine Act Passed

OF THESE TWO, the Plant Quarantine and Control Administration is the older body, if we date it back to include its former title, The Federal Horticultural Board.

I remember very well the long discussions that preceded the passage of the law by which the Federal Board was brought into being. There had been similar commissions in various foreign countries for many years. Their task was to do whatever was humanly possible to prevent dangerous plant pests from entering those countries and gaining a foothold in them. They enforced regulations intended to accomplish that purpose: sometimes excluding certain kinds of imports, or at any rate requiring adherence to various regulations intended to reduce the danger of bringing in noxious insects and diseases.

Over here we were slower to act. For years we permitted unguarded entry of practically anything. One after another we saw dangerous pests become established until the list was a long one and was accounting for a tremendously heavy drain on American horticulture and agriculture. Finally, we passed the Plant Quarantine Act, and set up the Federal Horticultural Board.

Misunderstandings Prevailed

MUCH of the discussion that preceded this move was based on mistaken understanding of facts. Erroneous interpretations continued for a long time and, indeed, still persist among many persons, although for the most part the truth is now much better appreciated than it was when the act was passed. Everyone who really understands the matter is now aware of the fact that definite and thorough quarantine and control regulations are absolutely necessary if we are to protect American horticulture from future losses that would be staggering.

A short time ago, in the course of changes in the organization of some activities in the United States Department of Agriculture, the Plant Quarantine and Control Administration was brought into being, succeeding the Federal Horticultural Board.

Much Credit Due Dr. Marlatt

FROM the beginning Dr. Charles Lester Marlatt was chairman of the Federal Horticultural Board. In the reorganization he became chief of the Plant Quarantine and Control Administration. He had also become chief of the United States Bureau of Entomology, of which he had been associate chief for a long period. The first of December Dr. Marlatt gave up the reins of the Plant Quarantine and Control Administration. He had given to that work untold thought and labor and had built it up to an organization of the greatest efficiency. It had been a mighty hard job. Those of us who have been more or less closely in touch with its problems and have known something of the perplexities and difficulties that Dr. Marlatt faced through this period of years, have always had a feeling that mighty few men in this country could have achieved what he succeeded in doing. It has always been a job of brickbats, too. So many persons have failed to understand the true intent of the Board and its powers and duties, and some of these have been persons in prominent positions. Dr. Marlatt continues as chief of the United States Bureau of Entomology.

The day that Dr. Marlatt laid down the reins of the Plant Quarantine and Control Administration they were taken up by Lee A. Strong, who had been assistant director of agriculture of the State of California—the very able assistant of that remarkably able man, Commissioner G. H. Hecke. I have known Lee Strong for years, as I have known Dr. Marlatt, and I believe there is no one in the

United States better fitted to assume these duties than he.

National Plant Board Created

UP TO THE first of December, Mr. Strong was chairman of the National Plant Board, the other body which meets in the conference in Florida this month of January. The National Plant Board was brought into existence through the action of State plant quarantine officials. This was done comparatively recently. A considerable number of years ago the western and Rocky Mountain States organized a regional board to discuss the quarantine and pest control matters in which they were interested. In the South the entomologists and State quarantine officers had a similar organization. Eventually, the whole United States was divided into four regions, including the western States, the southern States, the central States, and the New England and Atlantic coast States, and an organization was established in each. These became known as the Plant Boards of their respective areas. They have held their own meetings to discuss their own problems. Each regional board is made up of representatives from the States involved.

Then, in turn, each of these four regional boards selected two men to constitute a national organization, and the eight men thus chosen became the National Plant Board. Of course, the National Board does not have authority over the constituent States, but through the fact that its members are duly elected by the four regional boards, and the further fact that these regional boards are made up of the State officials of the 48 States, the National Board becomes a spokesman for the State quarantine and control official.

Joint Conferences Each Year of Federal and National Boards

ONCE a year since the National Plant Board was organized, a joint conference has taken place including both the Federal Board and the National Board. This is the conference scheduled for Orlando this January. It is of direct and genuine interest to all fruit growers and farmers, because the joint conference represents the great task of planning ahead in all measures, federal and State, for controlling the further introduction or spread of dangerous plant pests.

It is manifest that this co-operation of State and federal authorities is logical. Some of the measures for protection of plants from a new pest necessarily lie with federal authorities. This includes, of course, the larger part of the big program of inspection of shipments arriving in this country, which are likely to bring in new pests. Some of the measures are of local application and lie essentially with the State concerned. For example, the occurrence of a certain weevil in some truck crops in one of our western States is so far confined to that State itself, and is a matter for State action only. But a great many of the measures of quarantine and control are matters of joint interest to the federal authorities and to State authorities. It is logical that these two groups should work together, both in plans looking toward the future and in administration of existing measures.

Fruit Fly Work to Be Studied

JOINT MEETINGS of the two boards have hitherto been held in Washington. This year the conference was scheduled for Orlando in order that the two groups might together look over the work of fruit fly eradication that has been in progress in Florida since last spring. It is undoubtedly true that the fruit fly campaign that has been put across in Florida this last summer and fall is the biggest undertaking of the kind that has ever been carried through—certainly the biggest in the way of an actual eradication program. There were plenty of doubts at the beginning as to its possible success, and those doubts were not confined to those who were voting the money for the campaign. Many experts among entomologists looked on it as offering about one chance in a thousand. But all agreed that the situation was so enormously dangerous as to warrant almost anything in the way of conceivable effort and expenditure, in order to try for the one chance.

(To foot of next page)

He bought Stock in a Fake Company

A Bell System Advertisement

A FARMER near Kiowa, Colo., was talked into giving his check for \$500 in the purchase of a certain stock. When this man's banker received the check he telephoned the farmer and told him the company was fraudulent. The farmer asked the banker to stop payment on the check. The banker did so. Saved by quick action over the telephone, \$500.

Lightning struck the barn of a farmer living near Clifton, Va. He immediately called the telephone operator. She summoned neighbors and called the nearest village for help. People came as fast as automobiles could carry them. The house and outbuildings were saved.

The telephone pays for itself many times over—in running errands to town, finding when and where to sell for the best price, in keeping in touch with neighbors and friends. No price can be put on the value of the telephone in summoning aid in time of emergency.

The modern farm home has a telephone that works rain or shine.



Whitewash Prevents Sunscald and Winter Injury

By W. L. TEUTSCH

SUNSCALD and winter injury of young fruit and nut trees can largely be prevented by keeping the trees properly whitewashed during the winter months. So many Northwest fruit growers follow this practice and find it successful that C. L. Long, Oregon State College specialist in horticulture, is recommending it generally as a prevention of winter injury. Such injury usually takes place in the late winter and affects the south or southwest side of young trees. It is caused by freezing and thawing of the cambium layer just under the bark, due to the excessive and rapid change in temperature from the bright, sunny days and cold, frosty nights.

Sun scald is especially injurious to high-headed trees up to the age of eight years. It is more injurious to trees with dark-colored bark and those making little growth.

The temperature of the cambium layer on the sunny side of young trees in the early afternoon may be 15 or 20 degrees higher than that on the shady side of the tree, which is more nearly the same as the prevailing air temperature. The temperature of this cambium rapidly drops to slightly less than the prevailing temperature of the air when the sun disappears. This drop in temperature has been as rapid as 18 degrees Fahrenheit in three minutes. It often drops from a temperature of 70 degrees to 80 degrees Fahrenheit in the daytime to below freezing at night.

During winter days with the prevailing temperature running slightly below freezing, considerable damage may be done to the cambium on the south and southwest sides of the trees by the passing of occa-

sional clouds which temporarily shade the sunny side of the tree, permitting the temperature to drop down below freezing and immediately jumping up several degrees above freezing as the sun appears with the passing of the clouds. The rise in temperature of this bark, as the sun reappears, is just as rapid as the drop in temperature as the clouds shade the bark; that is, as high as 18 degrees in three minutes' time.

Experimental work carried on in Minnesota by R. B. Harvey shows that the color of the bark of different trees materially affects the temperature of the cambium on the sunny side of the trees. Black, brown or brownish-red bark maintained a temperature eight or 10 degrees Fahrenheit higher than white bark, such as that of white birch.

Another method of protection from

winter sun scald is obtained by shading the southwest side of the trunk from 12:00 to 3:00 p. m. by driving barrel staves or boards in the ground on that side of the tree.

Whitewash, having sticking and lasting qualities, maintained on the trunk, crotches and main branches of the trees up to eight years of age is probably the most practical and effective means for preventing sun scald and winter injury on the sunny side of the tree. This may be applied by hand with a brush or may be sprayed on the trees with the spray outfit. Applications should be made often enough to maintain a good white coating on the trees at least throughout the dormant season.

There are several good commercial whitewashes on the market for this purpose. The government Lighthouse for-

mula, although troublesome to make up, is a very good whitewash to use. The formula and directions for making this formula are as follows: Stone lime, one-half bushel; salt, one peck; ground rice, three pounds; plaster of Paris, one-half pound; glue, one pound; water, five gallons.

First slake the lime with warm water and strain it through a fine sieve or strainer. Dissolve in warm water. Boil the rice flour into a thin paste and dissolve the glue in boiling water. Mix the ingredients in the following order and stir well. Pour the salt solution into the lime, then the rice paste mixed therein boiling hot, the Spanish whiting or plaster of Paris, and then the glue. Finally add five gallons of hot water, stir thoroughly, and let it stand for a few days. This should be applied with a brush.

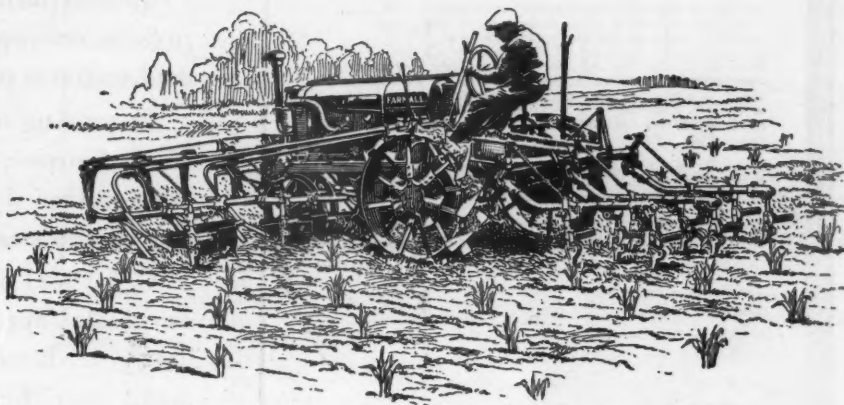
A prominent Oregon nurseryman claims this whitewash idea saved him \$1000 last year.

Tackle Your Farming Problems in 1930 with McCORMICK-DEERING Tractor Power

This is the FARMALL

cultivating four rows of corn. It makes a square turn and clears high rows. With 2- and 4-row planters and cultivators, it handles from 25 to 60 acres in an 8-hour day. It cuts a 14-ft. swath of hay, with 7-ft. Farmall-powered mower and 7-ft. trailer mower attached. Handles rakes, loaders, etc. Plows two furrows, pulls all seed-bed implements, and operates grain and corn harvesting machines.

The FARMALL is a McCormick-Deering Tractor. If it isn't a McCormick-Deering it isn't a FARMALL.



IN January the year is brand-new. Ahead of you are all your opportunities to farm at a better profit. How are you going to pull down your costs of production and accomplish most with least labor?

The best way of all is to make full use of McCormick-Deering power and big-scale equipment. There is abundant proof of this in every county of every state.

The modern power on more than 1,000 horseless farms and on tens of thousands of

other farms is McCORMICK-DEERING. The tractors made by International Harvester are the popular standard today. They are the products of unrivaled experience, built to work perfectly with the quality lines of McCormick-Deering farm equipment.

Success to you during 1930! Choose one of these three tractors — McCormick-Deering 15-30, 10-20, and the all-purpose row-crop Farmall. See them at the dealer's store, and write us for catalog.

INTERNATIONAL HARVESTER COMPANY

606 So. Michigan Ave.

of America
(Incorporated)

Chicago, Illinois

FOR the bigger power jobs, use the powerful McCormick-Deering 15-30, built for big-capacity equipment. C. H. Beard, of Williston, N. D., writes us: "Talk about power — my new 15-30 has oceans of it! It will pull 4 plows easier on high than my old tractor would pull 3 plows on intermediate speed."

Write for the Full List of 1000 Horseless Farmers of America, their names, addresses, and information as to the acreage they are farming.



The McCormick-Deering 15-30

Make the Most of Farm Equipment Week

this spring in your community — a time set aside for the national display of improved equipment. Check over your machine and repair needs against your plans for the year — now, while you have the time — and see the full line of power and equipment at your local dealer's store.

Peach Tree Survey Completed

ATOTAL of 9,713,324 peach trees in 1332 orchards in Georgia has been reported by the United States Bureau of Agricultural Economics, which recently completed a survey of commercial peach orchards in the State with the co-operation of the Georgia State College of Agriculture and Georgia State Board of Entomology.

Principal varieties grown in the State are as follows: Elberta, 51.6 per cent; Hiley, 21.1 per cent; Early Rose, 8.1 per cent; Georgia Belle, 5.6 per cent; Carman, 4.6 per cent; Uneda, 3.7 per cent; J. H. Hale, 1.5 per cent; Red Bird, 1.1 per cent; Mayflower, 0.8 per cent; all other varieties, 1.9 per cent.

Percentages of total trees by age are as follows: One year and under, 4.4 per cent; two to three years, 8.4 per cent; four to five years, 10 per cent; six to 10 years, 63.3 per cent; 11 to 15 years, 1.8 per cent; and over 15 years, 2.1 per cent. — J. H. Reed, Georgia.

The Warfare on Fruit Pests

(From preceding page)

As a matter of fact, the work was so promptly and efficiently organized, it brought in such complete and effective ammunition in the way of resources, both material and human, and each last detail was so minutely followed up, that it looks today like an undertaking that eventually may be counted a complete success. Incidentally, Dr. Wilmon Newell, plant commissioner of Florida, who has been in charge of the fruit fly campaign from the beginning, is a member of the National Plant Board.

On the efforts of the two groups represented by the two boards, Federal and National, hinges our hope and expectation of checking the spread of various pests and diseases that promise ill to every fruit grower, as well as our desires to reduce the danger of further disastrous importations of new pests. The insects that have come to us from abroad are bad customers. Those that we already have are responsible for a substantial proportion of the difficulties that our fruit growers must meet in raising a high grade product. Others that we might easily acquire would add to the difficulty. We have enough now, and we can get along without any more.

IF YOU DUST D-L-S DUST

TRADE MARK
REGISTERED U.S.
PATENT OFFICE

(Dry Lime Sulfur and Sulfur)

(with and without Arsenate of Lead)

NEAL ORCHARDS CLEVELAND, OHIO

July 19, 1929.

Sherwin-Williams Company,
601 Canal Road, N.W.,
Cleveland, Ohio.

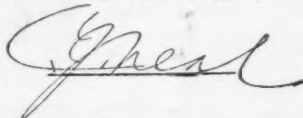
Gentlemen:

Our first season's experience with your new D.L.S. (dry lime sulphur) dust shows much improvement over the regular 300-mesh sulphur dust.

Because of the low temperature and very wet weather during the past season, that portion of our orchard where the regular 300-mesh sulphur dust alone was used, was damaged more from apple scab than that portion of the orchard wherein your new product was used.

The result was so outstanding that we will put a much larger portion of our trees under the new D.L.S. dust during the coming season.

I am convinced it is an article of great merit.
Yours very respectfully,



CJN:P

What a large apple grower thinks of D.L.S. Dust

Dusting with D.L.S. Dust in the Neal Orchard near Cleveland

D.L.S. Dust is the most desirable sulfur dust ever developed to control Apple Scab. It is far more efficient than straight sulfur, because it is more active and adhesive.



Write for booklet on D.L.S. Dust

Write us for full information on dusting with D.L.S. Dust. Data of particular interest to commercial grower furnished free.

OHIO AGRICULTURAL EXPERIMENT STATION

THE BIMONTHLY BULLETIN

Vol. XIV, No. 2 March-April, 1929 Whole No. 137

RESULTS OF FIELD TESTS WITH SULFUR DUSTS

Dusting Experiments on Apple Trees

Treatment	Total Scab on Leaves	Total Scab on Fruit
300 mesh dusting sulfur	9.6	23.9
85 parts sulfur plus 15 parts finely ground Dry Lime Sulfur	1.75	4.4

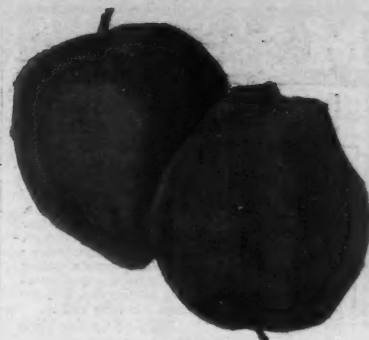
—"The 85-15 sulfur-dry-lime-sulfur was exceptionally promising and gave no injury." This shows the superiority of D.L.S. Dust (85 parts sulfur and 15 parts finely ground Dry Lime Sulfur) over ordinary dusting sulfur.

SHERWIN-WILLIAMS
SPRAY AND DUST MATERIALS

OR IF YOU SPRAY

DRY LIME SULFUR

THE ORIGINAL



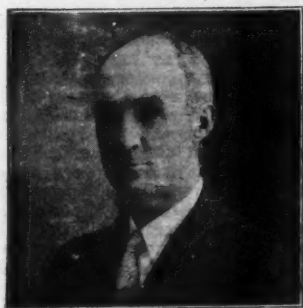
S-W Dry Lime Sulfur is the most convenient, efficient and economical spray on the market. It comes to you either in single 12½-pound bags or sturdy steel drums containing 16 of these 12½-pound bags. You pay no freight on water. Can't burn foliage. Can't clog sprayer nozzle. Can't deteriorate, and positively controls insect and pest ravages.

Prepare for the season's spraying needs now. See your local Sherwin-Williams dealer. He will help you pack a big percentage of top-price "extra fancy" fruit.

Send for full information

Write us for valuable information on Sherwin-Williams Dry Lime Sulfur and Mulsoid-Sulfur. Discussed particularly for the commercial grower. The Sherwin-Williams Co., Dept. 703, 601 Canal Road, N. W., Cleveland, Ohio.

Read what these growers say:



Replying to yours of the 16th would say that I have used your Dry Lime Sulfur for the past two seasons and like it better than liquid as there is no burning and the material is very convenient to handle.

The size package, 12½ lbs., is all right for me as I am using 25 lbs. in 400 gal. Summer Spray of water.

Very truly,
Paul Judson,
Judson Farm, Kinderhook,
New York.



Convenient
12½ lb. bag.

I have been growing apples in Calhoun County for 25 years and have used Dry Lime Sulfur since it was manufactured. My results have always been good, and I have gotten a higher percentage of clean, high colored fruit with the exclusive use of Dry Lime Sulfur than is possible with mixed sprays.

I do not hesitate to recommend Dry Lime Sulfur, as my personal experience warrants my highest regard for its use.

Yours truly,
Wm. McNabb, Hardin Drug Co.,
Hardin, Ill.
I operate 150 acres of orchard.



The Marshall Farm Orchards consisting of 6500 trees of McIntosh, Baldwin, Delicious, Wealthy, and Gravenstein have been sprayed with Sherwin-Williams Dry Lime Sulfur for the past fourteen years.

The control of Apple Scab, on McIntosh and Delicious particularly, during this period has been uniformly successful and the finish of the fruit has been splendid due to the absence of russetting.

The convenience and ease of handling your Dry Lime Sulfur has also appealed to us.

Yours very truly,
George A. Marshall,
Fitchburg, Mass.



After another season's use of your Dry Lime Sulphur we are again well pleased with the results.

Although the earlier part of the season was extremely wet, the Dry Lime Sulphur had no injurious effect upon the set of the fruit.

We expect to use the Dry Lime Sulphur another year for we feel safer in using it than we would in using the regular liquid form.

Sincerely yours, W. S. Perrine,
for Perrine Brothers,
1109 Perrine Avenue,
Centralia, Illinois.

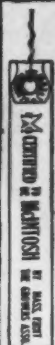


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**The McIntosh
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Delicious McIntosh Apples
bear heavily, ship perfectly,
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All Certified

1 and 2 year trees.
McIntosh and more than
30 other standard varieties.
Guaranteed healthy, true-to-
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Catalog describes 1000 varieties—
trees, evergreens, shrubs,
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ennials, 20% of order
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other new ideas and econ-
omies. Write for it today.

MALONEY BROS. NURSERY CO., INC.
Growers for 46 Years

113 Main Street Danville, N.Y.
BUDED on FRENCH SEEDLINGS

The Market Review

By PAUL FROELICH

United States Bureau of Agricultural Economics

THE CHRISTMAS season attracted fairly liberal supplies of oranges, but otherwise there was no exceptional activity in the fruit markets. The whole situation remained rather quiet, with expectations for improved trading after the first of the new year. Holdings of nearly all fruits are moderate, and supplies are less than those of last season. As the relative scarcity of some lines begins to be appreciated, values are likely to be well maintained and some advance of prices would not be surprising. It was not expected that the final official crop reports, scheduled for release on December 18, would show any great changes from the November estimates.

Co-operative Marketing

ESTABLISHMENT of the Farm Board has greatly stimulated the co-operative movement. Some crops for many years have been marketed largely on this basis. Citrus fruits are an outstanding example.

More than 60% of the big citrus crop of 1928-29 was marketed through co-operative channels. That crop was the largest in the history of the citrus industry in America. It was approximately 11% larger than that of any preceding season, and 35% greater than that of the 1927-28 season. It was about eight times as large as the crop of 1899-1900.

One California association handled 71% of the California crop, and another association 9%. The citrus exchange in Florida marketed 33% of the last Florida crop. Three associations, two in California and one in Florida, handled 62% of the total citrus crop of the United States.

Associations in Alabama and Texas, for the co-operative marketing of citrus fruit, also handled a portion of the 1928-29 crop, which means that the final revised figure indicating the percentage of our citrus crop marketed by or through farmer-owned or farmer-controlled co-operative agencies will be slightly larger than 62%.

One large exchange handled 65,417 carloads of California citrus fruit during the year which ended October 31, 1929. Of that number, 51,310 cars were oranges and the others mostly lemons. The f. o. b. sales value of all shipments was nearly \$90,000,000. Export movement has shown a large gain.

Shipments Increasing

BY MID-DECEMBER, carlot forwardings of all citrus fruits were increasing, partly on account of the Christmas demand. Total movement by December 7 was about 18,000 cars, compared with 22,000 a year ago. Most of the deficiency was in oranges and lemons. Grapefruit showed an increase over the previous season's corresponding record. Southern Texas had shipped three times as much grapefruit as during the early part of the 1928-29 season and had established a new record of 1500 cars by December 7. Shortage of oranges was seen particularly in Florida and central California. Alabama, with a record of nearly 500 cars of oranges, had shipped five times as many as the year before.

Apples in Cold Storage

MOST of the movement of commercial apples from now on will be out of cold-storage houses. Peak holdings of the season were reported on December 1 as 2,150,000 barrels, 15,041,000 boxes and 6,670,000 bushel baskets. Combined holdings under refrigeration were equivalent to 9,387,000 barrels, which was 10% less than the stocks of a year ago and slightly above the average December supply. Holdings in barrels were about one-fourth lighter than on December 1, 1928, and 38% below the five-year average figure. Boxed apples in cold storage were about 14% less abundant than last season but were 9% heavier than average stocks. As a result of increased storage facilities in the West, about two-thirds of the boxes were still held in Pacific Coast States. The large supply of apples in bushel baskets is a feature of the season. Basket stocks are nearly one-third greater than in 1928 and are 116% above the five-year average.

Trading Rather Slow

APPLE MARKETS were rather quiet, and price declines occurred on some of the leading varieties of Extra Fancy fruit in the Pacific Northwest. Medium to large Winesaps sold at \$1.75-\$1.90 per box, with Staymans at \$1.85-\$1.90 and Delicious averaging \$2.70. Very few sales of best-quality apples were being made in western New York. Best Baldwins returned \$6 per barrel at shipping points, and Rhode Island Green-

ings brought \$5. On a bushel basis, Greenings from cold storage sold at \$2.50. Ben Davis apples, unclassified 2 1/4-inch stock, sold at \$4 per barrel, on an f. o. b. basis. Combined weekly shipments had decreased to 1660 cars, as against 2560 during the same week last season. Total movement of 71,600 cars by December 7 was about one-fourth less than that of the year before.

Rapid Packing

FOR some time the warehouse department of a Yakima (Washington) organization of growers has aimed to be able to let every grower deliver his fruit when he was ready, and this year it has almost reached this goal. Only in a few instances was the district manager obliged to ask a grower to hold back his deliveries for a day or two. With more packing plants and new equipment, the packing crews were able to pack the fruit and put it into storage as fast as it was delivered at the platforms. This meant packing a trainload of apples every working day. During the week of October 21 to 26, the 16 packing-houses packed 215,000 boxes of apples, an average of 35,633 boxes or 47 carloads per day. Nearly half of this quantity was packed at four plants, at Weikel, Yakima, Gled, and Grandview. Practically all packing was completed by the middle of November. This made it possible for all fruit to go into cold storage earlier than ever before.

Foreign Markets

BY THE END of November, the export movement of barreled apples from United States and Canada was about one-sixth lighter than the year before, but exports of boxes were 40% short of their corresponding record in 1928. Condition and quality of much of the fruit arriving in British markets was rather inferior, so that the sales situation in that country and in Germany was somewhat depressed. Arrivals, however, were not excessive. Some varieties of eastern fruit were selling at auction considerably lower than at the same time in 1928, but western boxes were much higher.

With the passing of the peak of the season for continental fruit, imports from America will likely have a better showing. Supplies from Russia, however, are expected to be more abundant than last year, particularly in markets of Sweden. If the Spanish and the Italian orange crops turn out as well as indicated at present, this fruit doubtless will compete actively with apples in European markets. In addition to direct shipments of Florida grapefruit to Liverpool, the United Kingdom has recently been receiving cargoes of this fruit directly by boat from Porto Rico.

Berries Moving

FLORIDA strawberries began to move marketward in early December, and a successful season is expected in that State. Midseason berry acreage for 1930 will be reduced.

The 1929 production of cranberries in the important States is estimated at 548,000 barrels, compared with 544,000 in 1928 and 496,000 in 1927. The increase is due to the large crop in Massachusetts, production in other States being less than it was in 1928. The holiday trade was encouraging.

1930 Outlook Reports

GROWERS who are contemplating additional plantings of grapes, strawberries or fruit trees should keep in mind the annual outlook reports of the Department of Agriculture, which will be issued during the latter part of January. These reports always contain information of value, in a long-range consideration of the fruit industry.

Pruning Grapes

GRAPE PRUNING is much less complicated than the pruning of fruit trees, once a few fundamentals are mastered, declares F. E. Gladwin, grape specialist at the New York State Experiment Station at Geneva, who has prepared a brief account of how to prune and train grapes. "Divested of much that is but jargon, an inexperienced man can learn in a few lessons, from word of mouth or the printed page, how to prune grapes," says Mr. Gladwin. A copy of Mr. Gladwin's directions may be had free of charge upon application to the station at Geneva.

**ALMOST
99%
CONTROL**



Different growers—at different times—from different places—write practically the same letters. Read them:

A. M. Macklam & Sons, Canada, say: "We used NuREXFORM with gratifying results. The man who bought our entire crop of apples told us they were 99% free from insect injury."

The Glen Iris Orchard Co., New York, also wrote, "We have used NuREXFORM and find we get better results than from other leads. We get almost 99% control of the codling moth."

NuREXFORM will—and does—get better results because it is an improved Lead Arsenate. Will not settle in the tank. Will not clog screens or nozzles. Will not wash or blow off.

NuREXFORM covers foliage and fruit uniformly and completely.

With these indisputable facts before you, and another spraying season ahead of you, how are you going to figure? Will it be on a cost-per-pound basis for lead arsenate, or from a clean-fruit-per-tree standpoint? If you spray for profit, you should at least investigate the merits of NuREXFORM and other Rex spray materials. Send for circulars. Address the nearest company.

The Toledo Rex Spray Co., Toledo, Ohio
The Rex Company, No. Kansas City, Mo.
The California Rex Spray Co., Benicia, Calif.
Payette Valley Rex Spray Co., Payette, Idaho
The Canada Rex Spray Co., Ltd., Brighton, Ont., Canada

The REX line of agricultural sprays is complete and includes the following:

Rex Lime and Sulphur Solution	Rex 80-10-10 Sulphur-Lead Dust Mixture
Rex Dry Lime Sulphur	Rex Copper Dusts
Rex Oil Emulsion	Rex Sul-Powder (Substitute for self-boiled Lime Sulphur)
Rex Bordo Mixture	Rex Calcium Arsenate
Rex 85-15 Sulphur-Lead Mixture	40% Nicotine Sulphate
Rex 90-10 Sulphur-Lead Mixture	Sulphur 300 or 200 Mesh

NuREXFORM
IMPROVED DRY ARSENATE OF LEAD

\$5 to \$6 per Bbl. SAVING

Scalecide is celebrating its 25th anniversary by "cutting a melon" in the form of a big price reduction. Now you can buy this quality dormant spray at the lowest prices since 1917—and freight paid east of the Miss. River. At such low prices you can't afford to do without Scalecide. Alone, it controls every pest controlled by any dormant spray or combination of dormant sprays. And it is so simple and pleasant to use. Write today for free booklet, "Successful Spray Program." Please address Dept. 11

B. G. Pratt Company, 50 Church St., New York.

on last year's prices of
SCALECIDE
THE COMPLETE DORMANT SPRAY

Tremendous price reduction makes the cost so low that you are duty-bound to use SCALECIDE this year

"Teague Plan" Meets Opposition

Proposal to Create Seven Commodity Exchanges with Central Sales Agency Encounters Vigorous Opposition from Large Fruit Co-ops. Mutual Orange Distributors Refuse to Consider Proposal to Meet with California Fruit Growers Exchange for Discussion.

IN AN ENDEAVOR to reach some basis for an agreement between the many fruit and vegetable co-operatives, Charles C. Teague, fruit and vegetable member of the Farm Board, sent a tentative outline of a plan of organization to the leaders of the larger co-operative organizations, with request that representatives of these groups meet with the Federal Farm Board in Washington on January 14.

The plan presented by Mr. Teague was accompanied by a chart showing the proposed grouping of all fruits and vegetables into seven major groups, each group to be handled through a "Commodity Exchange," and all the crops assembled by the seven commodity exchanges to be marketed through a "Central Sales Agency" to be set up by the Commodity Exchanges in co-operation with the Farm Board.

Apple and Cranberry Men Oppose

THE APPLE organizations of the Pacific Northwest long ago expressed themselves as being opposed to any action on the part of the Farm Board looking toward stabilization of that crop. The cranberry organization followed with a similar expression of uncompromising opposition. The president of the latter organization, so it is stated in Washington, not only appeared personally before the Farm Board to argue against the plan, but later addressed a letter of protest to the Board with the request that it be made a matter of record. According to Washington information, A. U. Chaney asked Mr. Teague to submit the plan to the citrus organizations in the latter's own State (California) "and watch them turn it down cold."

That Mr. Chaney was correct in his prediction seems evident from the following exchange of telegrams between Mr. Teague and C. P. Earley, general manager of the Mutual Orange Distributors of California, in which Mr. Teague extends, and Mr. Earley refuses, an invitation to meet and discuss a plan of union with the California Fruit Growers' Exchange.

Teague Invites Conference

"NO DOUBT you are informed regarding efforts of the Federal Farm Board in attempting to consolidate existing co-operative organizations into national grower owned and controlled sales organizations in order to more effectively control distribution and sale of agricultural crops.

"In connection with citrus fruit, the Board has been attempting to strengthen and consolidate co-operative organizations handling citrus fruit in Florida. Through these efforts a number of large grower interests have recently been affiliated with the Florida Citrus Exchange, and the Florida United Growers have also agreed to merge with the Florida Citrus Exchange which would increase the percentage of fruit handled by that organization from less than one-third to about 50 per cent. It is hoped that if the Florida Exchange can be developed to a point where it can control a large percentage of the Florida product, that through some sort of working understanding with California some of the unsatisfactory market conditions which prevail during the movement of the Florida crop and when it directly competes with California Navels can be avoided.

Further Progress Desirable

"THIS BRINGS us to a consideration of whether or not still further progress can be made along this same line by merging or consolidating the two co-operative organizations in California handling citrus fruits, the California Fruit Growers' Exchange and the Mutual Orange Distributors. It would seem that these two organizations have enough interests in common to at least warrant a

conference for a discussion of possible consolidation. Would you be willing to appoint a committee for the purpose of meeting with a committee from the California Fruit Growers' Exchange and with me representing the Federal Farm Board? If you indicate that you would be willing to do this and will wire before I leave for California on December 15 I will endeavor to arrange a date for such a conference while I am in California."

Earley Explains Refusal

MR. EARLEY replied as follows: "Replying to your telegram of December 11, while we are in accord with a policy of encouraging a limited co-ordination of co-operatives, we believe the greatest benefit to an industry can come only from a policy of unrestricted competition as between at least two well organized grower owned, grower controlled

co-operatives handling a single commodity such as the citrus crops of California. A great majority of our more than 2000 members are growers who during the past 20 years because of dissatisfaction with results, service, policies or personnel of the California Fruit Growers' Exchange and other organizations have joined our ranks. Inasmuch as our membership is increasing annually it would be in our opinion a step backward even to consider a consolidation of the two co-operatives. The eventual outcome would be the organization of another grower owned co-operative to take care of the inevitable disintegration that would ensue, thus necessitating the repetition of the organization work that has been going on for the past quarter century.

Would Cripple Distribution

"ASIDE from the necessity of at least two organizations to take care of the situation at the point of production, we must consider also the jobber, the wholesaler and the retailer who deprived of their natural desire to barter

and trade would lose interest. Their initiative would dwindle and the final outcome would be a slackening of effort and a greatly reduced and narrowed distribution.

"Our clientele has been built up over a period of 23 years of intensive effort to render a highly specialized service. Inasmuch as the Federal Farm Board as you state is putting forth every effort to consolidate existing co-operative organizations into national sales organizations, thereby eliminating competition between co-operatives, and our views being diametrically opposed to that policy, a conference such as you suggest would be fruitless."

C. F. G. E. Receptive to Discussion

G. DEZELL, general manager of the California Fruit Growers' Exchange, took an opposite view and expressed disappointment over the reported refusal of the Mutual Orange Distributors to accept the Federal Farm Board's invitation to confer with a committee of his organization on a possible consolidation of the two citrus marketing co-operatives. The refusal, according to Mr. Dezell, precludes the possibility of an adjustment of misunderstandings existent among growers and consequent improvement of the handling.

(To Page 28)

When Insulating Your Storehouse

Be Sure You Use

INSULITE

the Wood-Fiber Insulating Board

These 2 Tests Prove It is

14% STRONGER

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FULL 1/2 INCH THICK MEANS

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THAN ORDINARY 7/16 INSULATING BOARDS

IT'S GOOD business to insulate your storehouse, because—less destructive, drying heat is required to prevent freezing in winter and the wilting heat of the sun is shut out in summer—rot and shrinkage is greatly reduced—and, your profits are increased.

When you insulate, it's good business to use Insulite because, in a recent laboratory test, the four best known insulating boards were tested for strength, and Insulite proved to be 14% stronger than any. Not only is Insulite strong, but—full 1/2 inch thick—it gives 12 1/2% more efficient insulation than ordinary 7/16 inch insulating boards. Insulite is an all wood-fiber board chemically treated to resist moisture and rot, vermin and rodents.

Insulite is slow to transmit heat or cold, which makes it possible to maintain the proper temperature at all times, to control humidity, and to prevent dangerous moisture condensation.

Now is the time to insulate—there are many freezing cold days to come, and the rapid changing weather of early spring is the most critical time of the storage year. See your lumber dealer today. And for fewer heating days, less depreciation and shrinkage—specify Insulite by name.

Prove the greater strength of Insulite... Drive a nail through a board of Insulite a half inch in from the edge. Loop a strong cord around the nail and with a hand scale see how much greater pull is required to tear the nail through the Insulite than any other insulating boards similarly tested.

Prove the greater insulating efficiency of Insulite... Replace the cover on a kettle of boiling water with a piece of Insulite and on the Insulite place a cube of ice. Check the time required for the heat to pass through and melt the ice. Make the same test with other insulating boards and we know you will use Insulite.



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Builders Exchange, Dept. 37A
Minneapolis, Minn.
Gentlemen:
Please mail me additional information about Insulite and a sample to test for myself.
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THE INSULITE COMPANY

(A Backus-Brooks Industry)

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USE **INSULITE** FOR
Resists
COLD ~ HEAT ~ DAMPNES

BARNs ~ POULTRY HOUSES
HOG HOUSES ~ SHEEP SHEDS
MILK ROOMS ~ DWELLINGS

Michigan Canneries to get Farm Board Aid

EARLY IN DECEMBER a delegation representing various Michigan fruit co-operatives, the Michigan State College, the Michigan State Farm Bureau and the Door County (Wis.) Fruit Growers' Union appeared before the Federal Farm Board with a plan of organization and a request for a facility loan of \$3,000,000, the loan to be used largely in effecting the purchase of a string of fruit canning factories in western Michigan.

Some of the smaller canneries in this region have been in financial straits, have never been profitable to their stockholders and are more or less heavily in-

Officers of Michigan Fruit Growers, Inc., and Michigan State College Present Plan to Federal Farm Board Aimed at Relief of Michigan Fruit Canning Industry. Growers to Raise 40 Per Cent, Board to Loan 60 Per Cent of Amount Necessary to Buy Canneries.

cumbered. The plan to transfer the ownership of the properties in question over to the fruit growers' organization is said to meet with enthusiastic approval on the part of western Michigan banks.

Pay in Twelve Years

UNDER the contemplated plan the growers will raise 40 per cent of the amount necessary to purchase the canneries, and will execute a first mortgage on the properties in favor of the

Federal Farm Board, who will thereupon advance the remaining 60 per cent necessary to complete the transfer of the properties from the present ownership to that of the growers' organization. Provision will be made for the repayment of this 60 per cent, to the Board, in annual payments at a low rate of interest over a period of 12 years, the necessary amounts to be deducted each year from the money received from sales of the grower-members' fruit.

Contracts Bind Growers

CONTRACTS are being prepared, the signing of which by a grower pledges his crop to the handling of and sale by the new organization, and authorizes and consents to the deductions from moneys due him from the sale of his fruits for the purpose of repaying the Farm Board.

The tentative plan is to go into effect when such contracts covering 50 per cent of the tonnage of fruits, based on the season of 1929, have been signed by the growers.

An outline of the proposed plan was released by the Federal Farm Board under date of December 10. The full text follows:

Statement of Farm Board

"THE FEDERAL Farm Board announced today that a tentative understanding has been reached with representatives of Michigan and Wisconsin fruit growers cooperative associations looking to the development of a unified cooperative marketing program.

"The agreement provides that:

"1. The cooperative associations representing the sour cherry producers of Michigan and Wisconsin are to form a single cooperative for the handling, processing and marketing of sour cherries of the following territories: Manistee, Benzie, Grand Traverse, Leelanau, Kalkaska, Antrim, and Charlevoix counties Michigan, and Door, Kewaunee and Brown counties, Wisconsin.

"2. The cooperative associations representing the production of cherries, pears, apples, peaches, plums, grapes and small fruits of the commercial territory of Michigan: Mason, Oceana, Newaygo, Muskegon, Kent, Ottawa, Allegan, Van Buren, Kalamazoo, Berrien, Cass and Manistee counties, excepting cherries in Manistee county, are to form a single co-operative for the handling, processing and marketing of these fruits.

"3. A joint central marketing agency is to be set up by both of the contemplated co-operative corporations.

Separate Sour Cherry Organization

"WHEN the sour cherry corporation has secured membership contracts representing 60 per cent of the production of sour cherries in the Wisconsin-Michigan territory based on the year 1929, the Board will grant a line of credit to the corporation of \$720,000 for the acquisition by construction or purchase of facilities for the processing of the commodity. These advances are to be limited to 60 per cent of the appraised value of the facilities acquired or constructed and are to be secured by first mortgages on all properties now owned by the sour cherry co-operatives and upon the facilities acquired or constructed. These loans are to be completely amortized in twelve years. New membership contracts obtained by the sour cherry corporation are to run for the life of the association with privilege of withdrawal annually for a period of thirty days after delivery for two crop years.

\$1,200,000 for Fruit Canneries

"IN THE CASE of the second corporation the Board will grant a line of credit of \$1,200,000 for the acquisition by construction or purchase of facilities for the marketing and processing of the fruits handled by the corporation when it has secured membership con-

tracts representing 50 per cent of the tonnage of the fruits, based upon the year 1929.

"The advances are to be limited to 60 per cent of the mortgaged property the same as is the case with the sour cherry corporation and is to be amortized in twelve years. Membership contract provisions are the same as those for the sour cherry corporation.

"The following provisions are applicable to both proposed facilities loans:

"(a) Provision is to be made for the creation and continuance of a joint central marketing agency by both of the contemplated cooperative corporations.

"(b) It is further understood that the management and policies of all three organizations above referred to are to be satisfactory to and approved by the Board and provision shall be made for the continuation of the cooperative character of the separate organizations, their management in accordance with the Board's requirements and all three shall agree that the Board may have the privilege of examining their books and records at any reasonable time.

"(c) Provisions shall be made in the organizations satisfactory to the Board for the admission of other producer members or other cooperatives upon equitable terms.

Growers to Pay All Costs by Deductions from Crop Income

"IT IS FURTHER understood that in the marketing contracts provisions will be made for deductions in contract and for publicity to the several fruits. The lines of credit above referred to, unless theretofore used, will expire on July 31, 1931.

"(e) All costs and expenses of appraisals, examination of titles, legal services and other charges incident to the granting of the loan or issuance and recordation of the papers are to be paid by the respective borrowers.

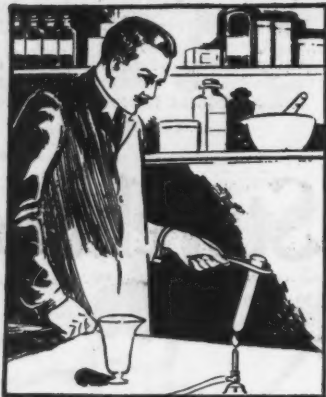
"The determination as to the compliance with the foregoing conditions is to rest exclusively with the Federal Farm Board and, in case of compliance therewith to the satisfaction of the Board, all papers, applications, notes, mortgages and other documents are to be in a form and with provisions likewise approved by the Board.

"Participating in the conference with the Farm Board December 3, when the tentative understanding was reached, were representatives of the following: Door County Fruit Growers' Union; Fruit Growers' Canning Co.; Michigan Fruit Growers, Inc.; the Michigan Cherry Growers and the Michigan State College of Agriculture, and the Michigan State Farm Bureau Federation."

The men who met with the Board were V. R. Gardner, Michigan State College; H. W. Ullsperger, general manager, Door County Fruit Growers' Union, Sturgeon Bay, Wis.; A. J. Rogers, president, Michigan Cherry Growers, Beulah, Mich.; Moulton B. Goff, president, Door County Fruit Growers' Union; James Nicol, South Haven, member, Michigan Fruit Growers, Inc.; O. R. Gale, Shelby, member, Michigan Fruit Growers, Inc.; Hale Tennant, Sodus, Mich.; Gifford Patch Jr., of Michigan State College, East Lansing; F. C. Bradford, St. Joseph, member, Michigan Fruit Growers, Inc.; F. L. Granger, manager, Michigan Fruit Growers, Inc.; M. D. Buskirk, Paw Paw Co-operative Association; Herbert Nafziger, Millburg Growers Exchange, Benton Harbor; David R. Murray, secretary, Michigan Cherry Growers, Traverse City; George Murch, member, Mattawan Co-operative Association; C. L. Brody, secretary manager, Michigan State Farm Bureau, Lansing; Francis Hughes, cherry grower, Traverse City, and William A. McCool, Traverse City.

STRAWBERRY PLANTS

Write for TOWNSEND'S BIG MONEY SAVING CATALOG. You will need this book, and it's FREE. Send the names of 10 fruit growers and receive \$1 coupon.
E. W. TOWNSEND & SONS,
115 Vine St., Salisbury, Maryland
(Largest growers and shippers of strawberry plants in the world.)



Fused!

That Is Why KOLODUSTS Give 10 Times Surer Crop Protection

LEADING fruit growers know that Kolodusts are the most effective dusts they have ever used—continuous experience has convinced them. And today many of these same fruit growers are wanting an explanation: they ask, "What is the chemical reason for the extremely high toxic properties of Kolodusts?"

The Fusing Process

Kolodusts, of course, are *not* made by ordinary grinding and mixing—this would give only a common dust. In the patented chemical process, sulphur is fused into Bentonite. This Bentonite-Sulphur is the super-active ingredient of Kolodusts. It is so fine that it cannot be seen under a high power microscope, and is extremely toxic.

When applied to the foliage, Bentonite-Sulphur forms a sticky, gelatinous film. This gradually dries, and transforms itself into a colloid of the irreversible type. That is to say, when once dried on the foliage it is thereafter non-wettable and will not wash off.

These chemical properties of Bentonite-Sulphur give to Kolodusts a toxicity at least 10 times greater than any other known sulphur dust. Careful tests prove it! No wonder it is the choice of scientific fruit growers.

NIAGARA SPRAYER & CHEMICAL COMPANY, Inc.

207 Elizabeth Street, Middleport, N. Y.

Niagara KOLODUSTS

Win \$3,500.00!

To advertise we are going to give over \$7160.00 in prizes. Charles Houlting, between 50 and 70 years old, won \$4345.00 in last offer; Joe Hanslick, 15 years old, won \$900.00; Mrs. D. H. Ziller won \$1800.00. You can win \$3500.00 now.

CAN YOU FIND THE TWINS?

Be careful! Don't make a mistake! It's not as easy as it looks because two, and only two, of the seven pictures are exactly alike. Find them—mark them—or send numbers on post card or letter. Over 25 prizes this time, and duplicate prizes in case of ties! Send no money. Anyone who answers correctly may receive prizes or cash. You can have cash or Waco airplane, or automobile, or new home. If correct you will be qualified for this opportunity.

\$625.00 Extra For Promptness

—making total prize you can win \$3500.00. Find twin flyers and send answer today. First prize winner gets \$625.00 cash just for promptness. Rush.

J. D. SHYDER, Publicity Director

54 West Illinois St. Dept. 215 Chicago, Illinois



Find the Twins

\$7160.00 in Prizes

Reply Today

Five Dollars a Week for Fruit

(From Page Ten)

much of a change in the volume sold, so far as I can see.

That 25-Cent Price

PEACHES, pears and apples are sold by the 25 cents' worth, and with little change in price during their seasons. We usually get 25 cents for nine peaches or pears displayed in the long quart box. Apples usually sell at three pounds for a quarter, with little regard to the ups and downs of the wholesale price.

With us the box apple is still preferred, although the bushel pack from nearby States, notably Michigan, is becoming popular from year to year. Michigan used to have a bad reputation for the quality of its fruit but this reputation is being largely overcome by the remarkable uniformity of the packs we have been receiving in late years, especially from Michigan Fruit Growers. This is especially noticeable during the present season. When other sections of the country showed a decided falling off in quality, Michigan very generally held up to its grades. This has brought out much favorable comment among the dealers and I believe it will have a decided effect from now on upon sales of the Michigan apple. The eastern apples, especially those from Michigan, Illinois, Indiana, Ohio and New York, have a quality and flavor much superior to that of the western apple. If the growers in these States could get a little higher color or even a better "finish" to their fruit and put it up in boxes, the western apple would be in danger of passing out of the picture.

But people generally buy apples on color. The exception to this is in the case of the Greening. People, our customers at least, have found that the highly colored Northwestern Greening does not cook up as well as the duller eastern Greening and they demand dull Greenings. But here again they depend upon the appearance of the apple.

Why the Bushel Basket?

THE BUSHEL BASKET is an awkward package and does not lend itself economically to the purpose of display. Display space is valuable, and can be fully utilized with boxes. The bushel basket, no matter how tempting its contents, is very apt to stay on the floor. In fact, except for the always lower price, it is doubtful if the average grocer would handle fruit in bushel baskets at all.

I cannot understand why any class of producers will insist upon marketing their product in a package that does not fit into the selling facilities of the retailer who must make the final sale to the consumer. Food manufacturers are continually studying our problems that their goods may flow through our hands to the consumers with the greatest dispatch. It pays them.

New Varieties for Old

(From Page Eight)

growing graft can then be completely removed, or, in cases where growth started from the lower bud, this growth can be utilized as the first permanent lateral or side branch. You will be surprised to see how the pruning of one scion will favor the other.

"Water sprouts" or "suckers" will arise from the scaffold branches of some trees. Vigorous growing ones should generally be removed. A few of the weaker growing ones may be headed back if necessary and left for several years to protect the scaffold branches from sun scald.

Pruning Top-grafted Trees

THE YEAR a tree is grafted the lateral or side branches on stocks that are left as "feeders" often make a tremendous growth, due to the removal of the stocks or branches in which grafts have been set. It is not unusual for a feeder branch to double its size in a single year. These stronger growing "feeders" should be removed within a year or two after grafting to give the grafts a chance to develop.

Don't put off that grafting job any longer. Get it done this spring.

Changing the Cranberry Package

FORMERLY cranberries came to us in a barrel, probably the most wasteful package ever designed—wasteful of space and of contents. The cranberry barrel was placed where it would not be in the way, was kept covered, and folks got cranberries when they asked for them.

Now the American Cranberry Exchange puts up the product in the bushel box, within which is packed a neat display sign; that, tucked into the end of the box, gives the price per pound and for several pounds. This little change alone is, I believe, responsible for the manifold sales of "Eatmore" cranberries over the old barreled cranberries.

The demand for California grapes shows a slight increase. The demand for the Concord holds about the same, except that during the past season our sales of the 12-quart packages fell off about 75 per cent. In the same season our sales of preserved apple cider increased in the same proportion. The reader may draw his own conclusion.

Our Purchasing Agency

WE BUY all our fruits and vegetables from wholesalers at the

South Water Market, as we have found by experience this is the most practical policy. We have a retail trade association consisting of about 400 neighborhood grocers, 250 of whom are stockholders in our organization. Through this association we operate a central warehouse through which we make our purchases of staple groceries, enabling us to meet present day competitive conditions. A few years ago we experimented with handling Jonathan apples in carlots through our warehouse, thinking to make a save in purchasing costs which we could pass along to our patrons. But the experience was not successful. The apples were placed in storage and delivered to the various stores as required. But a trouble developed with the apples. Many became soft and brown under the skin. Later we had it explained to us that this was a storage disease which might have been controlled, but after making a rather thorough investigation of the business of fruit handling, we decided the hazards were too great and we are leaving this branch of wholesaling entirely to the fruit distributors who are familiar with the "hazards of the game." Some lines of education are too expensive.

Georgia Peaches to Be Frozen

A MILLION-DOLLAR company, which will purchase Georgia peaches at the orchard, freeze them, and pack them in dry ice for shipment to any part of the world, is expected to take form with the application of a group of Chicago capitalists to organize such a company.

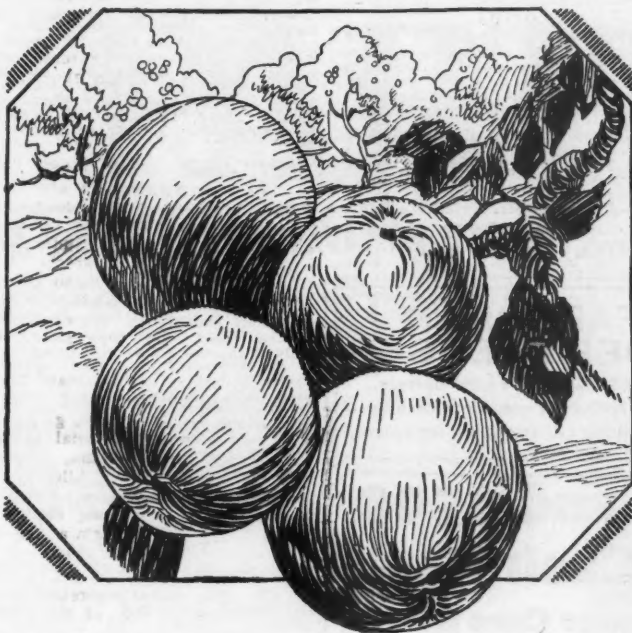
The company, which will have headquarters in Atlanta, according to W. R. Tucker, agricultural development agent for the Atlanta, Birmingham and Coast Railway, will construct from two to five plants at central points in the State for the handling of peaches. Each of the plants will cost around \$40,000. They

will freeze and market some 100 carloads of peaches a year.

Experimentation has been going on for some time on this new method of keeping peaches fresh and ready for the market, under the direction of the State Bureau of Markets, which financed the work, and the A., B., and C. Railroad, which conducted it, and about 4000 pounds of the fruit are in storage now at the plant of the Atlantic Ice and Coal Company, it is stated.

The frozen peaches are peeled and sliced for table use before being packed in one and two-pound containers for soda fountains and grocery stores.—J. H. Reed, Georgia.

MAKE NEXT YEAR'S CROP MORE PROFITABLE!



Think of Your Apples in Storage

In a season of over production, QUALITY is the only saving asset. The care and thoroughness of your efforts to grow Fancy fruit pays big dividends over casual spraying and dusting. And the place where care and thoroughness start is in the selection of Spray and Dust Materials of known potency.

"Orchard Brand" Materials are a nation-wide standard of quality. Growers have learned by experience that safety with Orchard Brand Sprays has a value much greater than any fraction-of-a-cent-a-pound difference in price.

Have you received the new 1930 "Cash Crops." If not, send for your copy. It's free.

GENERAL CHEMICAL COMPANY

40 Rector Street, New York

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ORCHARD BRAND SPRAYS

Lime Sulphur Solution
Oil Emulsion
Bordeaux Mixture
Arsenate of Lead
Calcium Arsenate
Arsenite of Zinc
Ditomic Sulphur

ORCHARD BRAND DUSTS

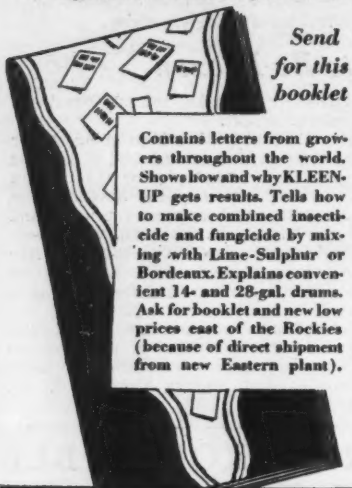
Sulphur Dusts
(with and without arsenicals)

ORCHARD BRAND
REG. U.S. PAT. OFF.
SPRAY & DUST MATERIALS



ALL THE WORLD SPRAYS WITH KLEENUP

—the proven winter control for European Red Mite, San Jose Scale, Aphis, Leaf Roller, and other insect pests. The result of 24 years of experience in scientific pest control.



Send
for this
booklet

Contains letters from growers throughout the world. Shows how and why KLEENUP gets results. Tells how to make combined insecticide and fungicide by mixing with Lime-Sulphur or Bordeaux. Explains convenient 14- and 28-gal. drums. Ask for booklet and new low prices east of the Rockies (because of direct shipment from new Eastern plant).

California Spray-Chemical Co.
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Also: Berkeley, Calif. • Yakima, Wash.
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STANDARD GARDEN TRACTOR

A Powerful Gas Tractor for Small Farms, Gardeners, Florists, Nurseries, Fruit Growers & Poultrymen.

DOES 4 MEN'S WORK

- Handles Field and Truck
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- or Riding Equip.
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Gives ample Power for thorough work. Rugged and Reliable.

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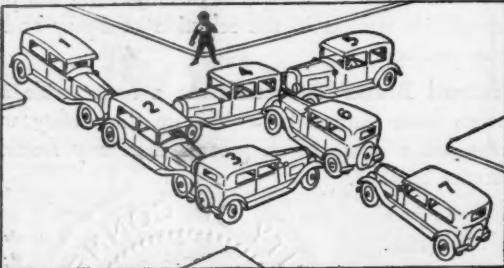
STANDARD ENGINE CO.
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3291 Como Ave. 2447 Chestnut St. 199 Cedar St.

Win Nash Sedan and \$500 or \$1,845 Cash

Seven Brand New 6-Cylinder Cars Given

For advertising purposes I am going to give absolutely free a brand new six-cylinder "Special Six" Nash four-door Sedan, an Oldsmobile two-door Sedan, a De Soto two-door Sedan, a Pontiac two-door Sedan, an Essex two-door Sedan, a Whippet two-door Sedan, and a Chevrolet two-door Sedan, all six-cylinder latest model Sedans; also a splendid new console type radios, a Victor Orthophonic Victrola and other valuable prizes. Any person living in the United States outside of Chicago may enter an answer to this puzzle except employees of the W. D. Boyce Company or members of their families, or winners of automobiles or first prizes in any of our previous offers, or members of their families.

SOLVE THIS TRAFFIC PUZZLE



In the picture there are 7 cars in a bad traffic jam. None of them can move forward, for each car is blocked by the one in front of it. One of these cars will have to be backed out. Which one? The traffic policeman seems to be stumped. Can you straighten out this tangle for him? Only one car may be moved backward, and if you pick out the right one, you will see that it is not necessary to back up any of the others. Send the number of the car which when backed out will relieve this traffic tie-up, and if your answer is correct you will be qualified for this opportunity.

\$500.00 for Promptness

We are not only giving the Sedans, radios and so forth in our big prize list amounting to over \$6,500.00, but are also giving an additional \$500.00 in cash for promptness to the winner of first prize if he or she has been prompt. Thus, the first prize winner will receive the Nash Sedan and \$500.00 in cash, or \$1,845.00. Find the car which when backed out will relieve this traffic tangle and send the number of it in a letter or on a post card, or you can mark the car on the picture and send it to me. Be sure to write or print your name and address plainly. All who answer correctly can share in the prizes or cash. ANSWER TODAY. In case of a tie for any prize duplicate prizes will be paid.

G. W. ALDERTON Dept. 349 510 N. Dearborn St., Chicago, Ill.

THROUGH the "MIKE"

to THE GROWER

Agricultural College Broadcasting Stations

ARKANSAS

Radio broadcast programs will be carried on by the Extension Service of the University of Arkansas College of Agriculture, this fall at three stations, KUOA, University of Arkansas, Fayetteville; KTHS, Hot Springs, and KGH, Marion Hotel, Little Rock.

COLORADO

The weekly programs presented by the Extension Service of the Agricultural College over station KOA are broadcast at 6:30 to 7:00 p. m., Mountain standard time, every Wednesday.—F. A. Anderson, Director, Extension Service.

CONNECTICUT

Connecticut Agricultural College station WCAC, wave length 500 meters. Every Monday and Wednesday from 7:00 to 8:00 p. m. Each Monday at 7:30 p. m. a talk is given by A. W. Manchester, professor of farm management, entitled "Farm Management Reminders." At 7:50 p. m. each Monday fruit growing subjects are discussed, the titles of which, for January and February, are as follows:

Jan. 6—Pruning Bearing Fruit Trees, W. H. Darrow.

Jan. 20—Profitable Fruit Varieties, S. P. Hollister.

Feb. 3—Timely Orchard Questions and Answers, S. P. Hollister and John Handy.

Feb. 17—Recent Developments in Spraying, S. P. Hollister.

Feb. 24—Eliminate the Poor Varieties by Grafting, John Handy.—S. P. Hollister, Professor of Horticulture.

FLORIDA

The University and State of Florida radio station WRUF broadcasts on a frequency of 830 kilocycles. The farm program is given from 1:00 to 1:30 p. m., Eastern standard time, each week day.

ILLINOIS

The University of Illinois radio station WILL is on the air daily, except Saturday and Sunday, from 5:00 to 6:00 and 7:30 to 8:00 p. m. It broadcasts on a wave length of 890 kilocycles or 337 meters.—F. J. Kethholz, Extension Editor.

IOWA

Iowa State College Station WOI, 468.5 meters, 640 kilocycles and 5000 watts.

FARQUHAR CIDER PRESSES

Built in sizes up to 400 barrels.

Write today for complete catalog.

A. B. FARQUHAR CO., Limited, Box 103, York, Pa.

Broadcast daily except Sunday from 7:00 a. m. to 1:30 p. m.—W. I. Griffith, Director, Radio WOI.

KANSAS

Kansas State Agricultural College (KSAC). The wave length of the station is 580 kilocycles or 316.9 meters. Our present schedule calls for a program from 8:00 to 9:00 a. m., 10:00 to 11:00 a. m., 12:30 to 2:30 p. m., and 4:30 to 5:30 p. m. The following horticultural talks will be given by H. L. Lobenstein, extension horticultural specialist:

Jan. 30—Varieties of Apples for Kansas.

Feb. 6—Pruning Young Fruit Trees.

—L. L. Longadorf, Program Director.

KENTUCKY

The University of Kentucky radio station WHAS broadcasts on a wave length of 800 kilocycles. Agricultural programs on Monday, Wednesday and Friday, 12:45 to 1:00 p. m.—N. R. Elliott, Program Director.

MARYLAND

We have an arrangement with station WMAL in Washington, D. C., whereby members of the extension, college and experiment station staffs broadcast 15-minute talks each Tuesday at 6:15 p. m.—A. H. Snyder, Extension Editor.

MISSOURI

University of Missouri. We do not have a radio station in connection with our school, and do no broadcasting, but we have a radio news service which was inaugurated some six or eight months ago and has proved very successful. This radio news service includes about 1200 words a week, being brief notes concerning the latest development in agricultural science. It is syndicated to four radio stations under a uniform release date. These stations are KFRU at Columbia, Mo.; KMBC at Kansas City, Mo.; KMOX, St. Louis, Mo., and WLS, Chicago, Ill.—A. A. Jeffrey, Agricultural Editor.

NEBRASKA

The University of Nebraska broadcasts over KFAB, transmitting on 389.4 meters. The Department of Horticulture will utilize 10 minutes of the Farmers' Half Hour every Tuesday at 12:10 p. m.

—Theodore Diers, Radio Director.

NEW YORK

Cornell University. We are operating station WEAI, which is owned by Cornell University, and we are broadcasting from it an agricultural program each noon, except Sunday, that is, from 12:00 to 1:00 daily. Eastern standard time. We are also furnishing material more or less regularly for station WHAM at Rochester, WGY at Schenectady, WGR at Buffalo and WCAD at Canton. When the Columbia circuit, through WABC, New York, put on a radio program for farmers, we also furnish copies for that series of stations.—Charles A. Taylor, Specialist in Extension.

NORTH DAKOTA

We do not have a radio station, but rent time from our station at Fargo, WDAY. The wave length is 234.2, and the kilocycles, 1280. Farm program, Monday, Tuesday and Thursday, 1:00 p. m.; Wednesday, 7:30 p. m.—W. C. Palmer, Chairman, Radio Committee.

OHIO

Ohio State University, WEAQ. The wave length is 526 meters or 570 kilocycles. Our agricultural broadcasts will be concentrated largely on Mondays. Each Monday at 12:50 p. m. Prof. C. R. Arnold, of the Department of Rural Economics, gives "Economic Information for Farmers." The Monday night broadcast, beginning at 7:00 p. m., is our Farm Night program. On this program there are six lectures given by members of the College of Agriculture faculty.—Robert J. Coleman, Publicity Manager.

OKLAHOMA

KVOO—"The Voice of Oklahoma," Tulsa and Stillwater. Broadcasting Oklahoma A. & M. College "Farmers' Hour" from the Stillwater studio on Mondays, Tuesdays and Thursdays from 12:45 to 1:30 p. m.—Ernest E. Scholl, Assistant Director.

OREGON

Oregon State Agricultural College, KOAC; wave length, 545.1 meters; frequency, 550 kilocycles. We operate on the following schedule daily, except Sundays and holidays: 12:00 to 1:15 p. m., 2:30 to 4:30 p. m., 6:30 to 8:00 p. m. Market reports, including fruits and vegetables, are broadcast in the period 12:45 to 1:15 p. m. and 6:45 to 7:15 p. m. These reports are taken from the leased market news wire of the United States Bureau of Agricultural Economics. Seasonal horticultural topics are broadcast each Friday night at 7:15.—W. L. Kaddery, Program Director.

SOUTH DAKOTA

The South Dakota State College station has the call letters KFDY. It operates on a frequency of 550 kilocycles with the power of 1000 watts.—H. M. Crothers, Dean, Div. of Eng.

TENNESSEE

University of Tennessee. Our call letters are WOBT, and the station is located at Union City, Tenn. They broadcast with 1310 kilocycles.—J. Paul Phillips, Radio Director.

WASHINGTON

State College of Washington, KWSC; wave length, 245.8 meters; frequency, 1220 kilocycles. Tuesday, 11:00 a. m. to 1:00 p. m.; Monday and Wednesday, 3:30 to 5:00 p. m., and Monday, Wednesday and Thursday, 7:00 to 9:30 p. m.—Arvilla Weissel, Program Director.

WEST VIRGINIA

West Virginia University, over Station WMMN, 890 kilocycles. Agricultural programs Saturday afternoons, 4:10 to 4:30.—Roy Yoke, Alumni Secretary and Program Director.

WISCONSIN

The University of Wisconsin radio station WHA broadcasts on a wave length of 319 meters and a frequency of 940 kilocycles. Agricultural topics broadcast daily except Sunday from 12:30 to 1:00 p. m.

NBC Farm-Home Broadcast Program

Broadcast daily by the United States Department of Agriculture in co-operation with the National Broadcasting Company. On the air from 12:00 to 12:45 p. m., Central Standard Time.

NBC January Programs

JAN. 1—Agriculture Looks at 1930, Renick W. Dunlap.

JAN. 2—Watching the Weather with Uncle Sam, Welby R. Stevens.

The Agricultural Situation, A. B. Genung.

JAN. 3—The Household Calendar, Rowena Schmidt Carpenter.

Federal Farm Board Program.

The Week with the Farm Board, Frank Ridgway.

Prospects for Co-operative Marketing in 1930, A. W. McKay.

JAN. 4—4-H Club Program:

A Happy 4-H New Year, C. W. Warburton.

4-H Club Work in Hawaii, Madge Reese.

My 4-H Club Experience, Victor Meyers (Virginia Club Boy).

My 4-H Club Experience, Dagny E. Olsson (Rhode Island Club Girl).

JAN. 6—Watching the Weather with Uncle Sam, Welby R. Stevens.

JAN. 7—The Garden Calendar, W. R. Beattie.

The World Agricultural Census, L. M. Estabrook.

JAN. 8—A Summary of 1929 Weather, J. B. Kincer.

JAN. 9—Watching the Weather with Uncle Sam, Welby R. Stevens.

Preventing Food Poisoning, Dr. A. C. Hunter.

JAN. 10—The Household Calendar, Rowena Schmidt Carpenter.

Federal Farm Board Program.

The Week with the Farm Board, Frank Ridgway.

JAN. 11—Land Grant College Program:

C. A. McCue (University of Delaware).

H. J. Patterson (University of Maryland).

JAN. 13—Watching the Weather with Uncle Sam, Welby R. Stevens.

JAN. 14—The Garden Calendar, W. R. Beattie.

What Recent Farm Mortgage Foreclosure Statistics Show, L. C. Gray.

JAN. 15—Watching the Weather with Uncle Sam, Welby R. Stevens.

The Price Situation, O. C. Stine.

JAN. 16—National Farmers' Union Program.

JAN. 17—The Household Calendar, Rowena Schmidt Carpenter.

Federal Farm Board Program.

The Week with the Farm Board, Edgar Markham.

JAN. 18—The National Grange Program.

JAN. 20—Watching the Weather with Uncle Sam, Welby R. Stevens.

Changes in Fruit and Vegetable Marketing, W. A. Sherman.

JAN. 21—The Garden Calendar, W. R. Beattie.

The Farmer and the Business Situation, L. H. Bean.

JAN. 22—The Farm Calendar, W. R. Beattie.

Planning the Home Garden, C. P. Close.

JAN. 23—Watching the Weather with Uncle Sam, Welby R. Stevens.

JAN. 24—The Household Calendar, Rowena Schmidt Carpenter.

Federal Farm Board Program.

The Week with the Farm Board, Frank Ridgway.

JAN. 25—Farm Bureau Federation Program.

JAN. 27—Annual Agricultural Outlook Program.

JAN. 28—The Wheat Outlook, O. C. Stine.

The Cotton Outlook, A. W. Palmer.

The Tobacco Outlook, C. E. Gage.

The Feed Grains Outlook, J. A. Becker.

JAN. 29—The Dairy Outlook, C. L. Holmes.

The Beef Cattle Outlook, C. E. Gibbons.

The Hog Outlook, C. A. Burmeister.

The Sheep Outlook, C. L. Harlan.

JAN. 30—The Potato Outlook, J. B. Shepard.

The Fruit Outlook, F. G. Robb.

The Early Vegetable Outlook, Paul Koenig.

The Poultry and Egg Outlook, Roy C. Potts.

JAN. 31—The Household Calendar, Rowena Schmidt Carpenter.

The Federal Farm Board Program.

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Increasing Orchard Profits

(From Page Five)

others. Where the average terminal growth was 3.39 inches, every additional inch up to eight inches increased the yield of fruit the following year 3.4 bushels per tree. Every inch of increase in terminal growth added 1.7 bushels per tree to the current crop. With an average annual trunk growth of 0.9 inch in circumference, each additional quarter inch up to 2.4 inches was accompanied by an increase in crop of 4.2 bushels per tree for the following year, and less than one bushel for the current year. During the time these experiments ran, an average of 55 per cent of the spurs on a tree bloomed every year. An increase of 10 per cent in the number of spurs blooming increased the yield 0.4 bushel per tree. A hundred per cent bloom increased the yield only 2.2 bushels per tree. For every 1200 spurs above the average, there was an increase of approximately one bushel of fruit. The nitrogen-fed trees had 7000 to 8000 and the phosphorus-fed trees 5000 to 6000 more spurs than the trees not receiving these fertilizers.

This increase in number of fruit spurs was always accompanied by an increase in both terminal and trunk growth. It can be readily seen, therefore, that any increase in production, aside from insect and disease control, will come only through increasing the vigor and growth of the trees. As already stated, it makes no difference how this increase is brought about, whether by a greater supply of

done, but it is also evident that the common practice is to prune too much. From an economic standpoint the higher quality varieties which are closely graded and sold in packages may be pruned a little heavier, with profit, than varieties of lower quality or than those from which the fruit is sold in mixed grade or bulk.



The trees in this orchard have been pruned just enough to permit thorough spraying and insure color on the fruit.

It behooves us, then, to determine wherein the difficulty lies, whether it is a shortage of water or some fertilizer element or whether we should change pruning methods. Since fruit production is so closely associated with tree vigor, we may accept this to some degree as an index and adapt cultural practices so that optimum vigor will result. While too much vigor may be encountered in young trees and those in early bearing, it is scarcely ever encountered in mature trees. Heavy pruning, together with heavy fertilization, may reduce yields due partly to too much growth, but even in such cases the greater part of the reduction is due to the removal of fruit spurs by the pruning operation. It is a safe practice, as a rule, to encourage as much growth as possible so long as the color and size of the fruit remains satisfactory for the variety and the methods of grading, packing, and disposal.

She was being shown through the locomotive works.

"What is this thing?" she asked, pointing with her parasol.

"That," answered the guide, "is an old engine boiler."

"And why do they boil engines?" she asked.

"To make the engine tender," was the polite reply.

Make Cletrac Your PARTNER

-to Ease Your Work and Increase Your Profit!

PARTNER! That word well describes Cletrac's scope of service. Helpful, dependable, willing, it is an able partner that shoulders the heavy work and does supremely well whatever job you give it.

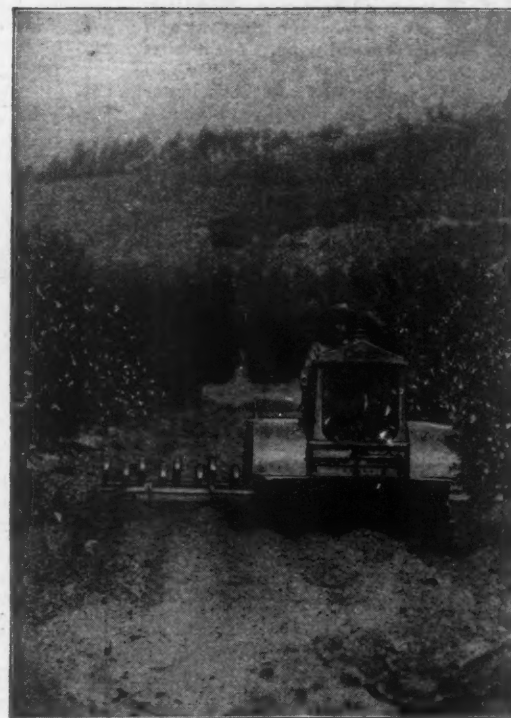
More and more fruit growers each year are turning to this highly efficient, thoroughly proved tractor as a means to better, easier and more economical work among their trees.

Cletrac's low build and swift response to the controls make it easy to operate in close quarters and under low hanging branches. Its broad crawler tracks and extremely light tread enable it to travel the soft spots without soil pack and to negotiate steep grades, up, down and across without wasteful slippage. Its abundant power means ample capacity for implement loads and tough going.

You can profit, as thousands of other orchardists and grove owners have profited, from a partnership with Cletrac. Write for the story.

The Cleveland Tractor Co.
19301 Euclid Avenue, - Cleveland, Ohio

Cletrac



Cletrac "20" is an ideal size tractor for the needs of orchard and grove work. Delivering its rated twenty horsepower at the drawbar with an additional 25% margin in reserve, it combines ample power with surprising economy of operation. By reason of the recent substantial price reduction on this popular model, it is now obtainable at the lowest price at which it has ever been sold.



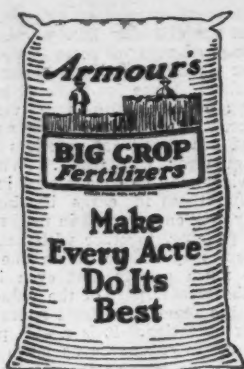
This tree has been pruned—at the bottom where pruning didn't help at all. Such pruning reduces the yield by cutting down the fruiting surface and is of practically no benefit.

moisture secured through cultivation, the supplying of plant food through the use of fertilizers and manure, or pruning; or a combination of the three.

The Effect of Pruning

WE MUST CONCEDE that pruning is not an invigorating operation as far as the tree as a whole is concerned, but it does have a tendency to invigorate or to increase the growth of certain parts which are left in the vicinity of the cut. Here again the influence is manifested largely through the number of operative fruit spurs. It has been our experience during the past several years that heavy pruning, although it tends to enhance the grade of fruit, actually decreases the amount of merchantable fruit and the net returns by greatly reducing the number of fruit spurs on the tree. A comparison of light pruning with no pruning likewise showed a gain for no pruning during the first four years with a gradually diminishing difference. This season the difference was in favor of light pruning. The unpruned trees still have many more spurs than the lightly pruned ones, but many of them, because of keen competition and lack of light, are becoming inoperative as far as fruit bearing is concerned.

There is considerable difference in the percentage of spurs blooming and the percentage of those blooming which set fruit. It is evident that some pruning must be



ARMOUR'S "BIG CROP" IS A FOOD FOR FRUITS

ARMOUR'S Big Crop High-Analysis Fertilizer does more than increase one year's yield. It's a food for fruits . . . building up the plant-structure . . . giving it more strength and vitality. It took 35 years to develop Big Crop formula into a superior tree, cane and vine builder as well as a fruit-grower!

Nitrogen in quickly available form sets a larger crop. Phosphorus promotes early fruiting and hastens maturity too. Potash takes care of improving the flavor and making firmer fruit that's better to ship. Nitrogen, potash, and phosphorus are proportioned to a "T" in Big Crop.

These are immediate results from Big Crop. It does a whole lot more! Nitrogen, phosphorus and potash promote healthy wood and leaf growth, spur and bud development. They give vigorous root growth. The trees, vines and plants are kept growing later in the season and Big Crop furnishes them extra vitality to fight diseases and resist winter-killing.

This year, get a good crop and build a healthy orchard. You'll do it with Armour's Big Crop. If you don't know the name of your nearest Armour dealer, write us today. Send the coupon for a copy of Armour's Farmers' Almanac.

Armour Fertilizer Works

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U. S. A.

Mail this
coupon today



ARMOUR FERTILIZER WORKS
Dept. 127, 111 W. Jackson Blvd., Chicago, Ill.
Please send me, free, a copy of Armour's
Farmers' Almanac for 1930.

Name _____

P. O. _____ R. F. D. _____

County _____ State _____

☐ Check here if you do not know the name of
the Armour dealer nearest you.

CHATS with the Fruit Grower's Wife

By HAZEL BURSELL

Short-Cuts in Household Tasks

FOR MANY MONTHS, even years, the editor of this department has been accumulating helpful ideas for saving time, energy or money, and she has wanted to share them with her readers. Most of them are just little items, far too short to make a real article by themselves, and yet, taken as a whole group, they form an important part of our household information. It would seem that at the beginning of a new year is a good time for adopting newer and better methods of doing everyday household tasks. The writer has therefore decided to group a whole collection of these seemingly unrelated household hints into one article and present them in our "Chats" department for the New Year's issue.

Cold Water Prevents Sticking

TO PREVENT MILK from sticking to the kettle when it is heated, try rinsing the kettle with cold water just before placing the milk in it. This item alone can save you lots of work and time. Rinsing the mold with cold water before placing a gelatine dessert in it to "set" will cause the finished dessert to slip out of the mold more readily when you wish to unmold it.

If you find it necessary to mend the underarm lining in a coat, whether man's or woman's, the patch will be far neater and less conspicuous if made in the form of shields to match the lining. In women's coats the shields may be complete in themselves and merely tacked at lower edges and corners, or they may be stitched down by hand as for men's coats.

Everyone knows that boiling water poured directly on red fruit and jelly stains will remove them quickly and completely. This should be taken care of before starting the laundering process. There is also a commercial chlorine preparation which may be used in the soaking water to remove many kinds of stains from the clothes, at the same time whitening them beautifully. Care must be used to dilute it according to directions, as it may destroy delicate fabrics if used at full strength. Only white or fast colors should be soaked in this solution, of course.

To remove iron rust stains from clothing, linens, etc., make a paste of lemon juice and salt and cover the spots to be treated, then place in hot sunshine, occasionally moistening the spots with the lemon juice mixture, until the spots disappear. If sunshine is not available or you are in a hurry, you may treat the spots with lemon juice and salt as above and then hold the spots directly in the steam from the spout of a teakettle until they vanish. Turn the cloth so that the steam may act on both sides.

To prevent the tips of turkey, goose or chicken drumsticks from burning during the roasting process, slip a ring of the otherwise wasted neck skin over each drumstick before placing the fowl in the oven.

Care of Mop Outlined

DO YOU have mop troubles? If you have, most of them are probably due to the wrong kind of a mop stick, a poor mop rag, or improper care of the equipment, or all three. Every woman who has tried a mop of the self-wringing type would never go back to the other hand-wringing kind. I find that a big soft piece of old woolen underwear makes an ideal mop rag—easily wrung, light, absorbent of water, and pliable. The mop rag should always be separated from the holder after each using, rinsed thoroughly, dried and replaced in the holder ready for use again. This treatment prevents rust and consequent breakage and inspires a nice clean mop for next time. A special mop pail should be kept for the purpose. Self-ringing mops come complete with their special pails.

Save all the vaseline, cold cream and

other small porcelain jars. Wash them thoroughly, sterilize and use them for jams, preserves, fruit, vegetables or custards in school lunches. Save their own tight-fitting lids, those with screw tops being preferable.

Often we need a small funnel to fill salt and pepper boxes, or to pour oil or medicine into bottles. We can easily provide one by cutting off the tip of the corner of an envelope and using this corner as a funnel. Two such paper funnels may be inserted in the crusts of berry and other juicy pies to permit the escape of steam and thus prevent them from running over.

For Fluffy Pumpkin Pie

WHILE we are on the subject of pies, there is another special trick which insures a marvelous texture and more delicate flavor in pumpkin, squash, or cream pies or others of that type. Beat the egg whites stiff and fold quickly and smoothly into the prepared hot pie filling just before placing the filling in the pastry lined pan. A pumpkin or cream pie prepared in such a manner has a creamy, fluffy texture and a mild, delightful flavor.

You will find that the purchase of several very small aluminum kettles from the 15-cent store will prove a marvelous convenience in any household. They are handy for making a bit of cooked salad dressing, for heating one or more cups of milk, for warming up a small quantity of left-over vegetable or fruit, for poaching one egg, for cooking the baby's foods, etc. They are inexpensive, easy to clean, economical of food and convenient to use. I couldn't keep house without them.

To really enjoy your housework, you should always wear pretty, becomingly made and yet practical housedresses. There are so many nice styles in housedressing patterns now, as well as delightful fast-color prints of which to make them that it is our own fault if we drag around in dark, drab, uninteresting house frocks. You should have several, all in good repair and in your becoming colors, and you must keep them all starched and perky if you wish them to look their best and to launder easily. Then get a new one from time to time as the old ones begin to fade or get tiresome. A few cleverly made print aprons would also prove useful. Try this remedy for "that dreadful tired feeling," and see if it doesn't vanish.

Comfortable Shoes Essential

COMFORTABLE, neat oxfords with rubber heels will also do much to lift the burdens of any housewife who must be on her feet much of the time. You should use as much care and spend as much money, if not more, on your work shoes than on your "Sunday-go-to-meetin'" shoes—you wear them far more and get more good out of them. Don't try to wear out your dress shoes or someone else's cast-off shoes as your work shoes.

A high stool or comfortable kitchen chair should also be a necessary part of your kitchen equipment. It will certainly be a foot-saver if you use it as you work every chance you get.

To prevent the pickles in your partially filled jars of these delectables from floating on the top of the liquor and getting soft or moldy before being eaten, try floating a piece of paraffin on top of the liquor in the jar. In this way you can keep the pickles down in their proper place.

Keep Lemons in Water

DO YOU HAVE trouble keeping your lemons from drying out before you get them all used? Here is a way to preserve them in their original state until wanted. Place the lemons in a preserving jar, pour boiling water

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over them, filling the jar to the brim, then seal the jar. Lemons treated in this way should keep two months. You can take them out as needed.

If you will buy a small aluminum sugar scoop from the 15-cent store and keep it in your sugar bin for measuring sugar, you will find it a great convenience, as the sugar will not stick and coat it as it will a cup or glass.

To open walnuts in such a way that the meats will come out whole, take a wide-bladed jack-knife with a good point and insert the blade between the halves at the rounded end of the nut and pry the shell halves apart. They will open easily in this way. Then separate the nut meats into their natural halves and remove from the shells. (The meat halves sit at right angles to the shell halves.)

Cut Butter with String

TO CUT BUTTER into pats of a size suitable for individual service, buy the rolls cut in quarter or half pound pieces, then cut "pats" from these long oblongs, using a string to do the cutting. A warm knife will also serve, or a knife blade wrapped in waxed paper may be used to cut the roll cleanly and smoothly.

By adding a pinch of baking powder to mashed potatoes during the beating process you can be assured of white, fluffy mashed potatoes. Using hot milk instead of cold milk also makes them light and fluffy. Beat very vigorously and heap at once into serving dish. One housewife is authority for the statement that beating with a silver fork is the best way to secure, smooth, creamy, light potatoes.

Every housewife should keep on hand certain rubber goods. She should have two rubber aprons—one for the kitchen and another for the laundry, also a pair of light-weight surgeon's rubber gloves (these permit free movement of the hands and fingers), and a rubber cap. All these articles will wear much longer and retain "the bloom of youth" if given a coat of talcum powder—the gloves and cap each time they are used and the apron occasionally. Always powder the rubber apron each time it is washed, to keep it from being "sticky."

Cook Macaroni in Sieve

TO PREVENT MACARONI or similar starchy foods from sticking to the pan while cooking, try placing the food in a closely woven wire basket or in an old wire strainer and placing it in the kettle of boiling water in the strainer. In this way it is easily drained and does not have to be watched while cooking. Always cook these things in plenty of boiling salted water, as they will absorb only the quantity they require anyway.

You will find that you can save much time and energy in sewing if you will press in all hems and turnings possible. Nearly all kinds of hems can be marked carefully and pressed in without basting. They go in more smoothly and are lots less work. Remember that the more preliminary pressing you do, the better your finished products will be. Good tailoring means good pressing.

It is far more accurate to measure curtains and other straight lengths of material by using a yardstick or folding six-foot rule rather than the old-fashioned inaccurate tapeline. You should also try the partners of your pairs together before doing the finishing to be sure that no mistake has been made. A few minutes spent then may save much time and exasperation later.

To Eliminate Scratches

YOU CAN eliminate scratches and the various marks on walnut and other varnished furniture by rubbing with the cut surface of a walnut meat. This treatment will remove all traces of the marks unless the wood has been dented, or a piece of the varnish actually chipped out. Even so, it will restore the original color to the injured spot.

Parents should provide a place where the children can hang their wet coats, caps and gloves to dry, and should teach the "kiddies" to perform this service for themselves. A line or clothes rack near a heater or radiator will serve. Their clothes are thus protected from mildew, and the worry over the possibility of their wearing damp clothes will be eliminated.

"Iceless" Refrigerator Car

THE AUTOMATIC iceless refrigerator car, after three years' experimental work, has been perfected by the engineering research department of the North American Car Corporation of Chicago. Announcement has just been made of the completion of final tests in operation during which the car gave perfect results. This accomplishment means not only that the refrigerator car business will be revolutionized, but that it will gain a new and important industry.

The new type of refrigerator car is claimed to have so many advantages over the ones now in use that the North American Car Corporation will begin at once to equip its fleet of refrigerator cars for mechanical refrigeration, and a considerable volume of this work will be done at its plant in North Judson, Ind.

In the new Frigicars, trade name for the new invention, mechanical refrigeration is obtained while the car is in transit by power drawn from the axle. By means of a mechanical cold control a constant temperature can be maintained at any point from zero to freezing. No chemicals or materials are used except ammonia and brine, the two used by the ordinary ice plant. In principle, the new cars are similar to the modern electrically operated refrigerator, and they have about the same advantages over the old-

fashioned iced refrigerator car that an electric refrigerator has over the old-fashioned ice-box.



And now comes the "Frigicar", an automatically icing freight car which is expected to save thousands of dollars annually to shippers of perishable fruits throughout the country. The car is a veritable mechanical icebox on wheels and furnishes its own icing power from the axle.

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In and About

The GARDEN

Conducted by
FLORENCE B. CRANE

January Garden Work

BUT WHO ever heard of doing garden work in January? I hear one or two of our readers from the northern States exclaim—not the seasoned gardeners, for every tried and true gardener knows that January is a very busy month. It is the month for dreaming the next year's garden—that garden where you have room for all the flowers and vegetables you have always wanted to grow, and they all grow free from blight and drought and pests to those perfect proportions reached in their catalog pictures; the month for pruning grapevines and trees in the way they should go; for shopping about from catalog to catalog for ideas and suggestions, taking time carefully to decide upon varieties for your next year's garden; for putting tools, garden furniture and trellises in order for next season; and for doing the needed construction work—draining that wet spot in the garden, leveling the lawn, transporting that boulder for the rock garden, and mending the garden paths.

Plan for Beauty as Well

IN PLANNING next year's vegetable garden, why not plan for beauty as well as utility? You are going to spend a good many hours next summer looking at your garden and working in it, so make it a place that will be a delight for your own eyes and for those of the passerby. We all admire an enclosed garden for its beauty and privacy, yet how few of us own one. If there is a wire fence around the garden, plan to set grapevines along it—the small, pinkish red Delaware and the early white Niagara for the table; the luscious, velvety blue Concord for pies and preserves; and the tart, pleasant-tasting Catawba for later use. Or start a hedge of combination pink weigela and creamy white syringa for a shower of color and fragrance in spring. They will start from cuttings. Or a hedge of lilac, shading from white to deep purple. A board fence or stone wall would be lovely covered with rambler roses, and one side might be devoted to blackberries.

A row of trees outside the garden adds to its beauty, but takes away moisture from the soil. They are best planted at a little distance from the fence. And the beauty of this—it need not be done in one season—in fact, it is better to go slowly, building on the past and profiting by past experience. Plant a black walnut at each corner of your garden—or a native butternut—and put in a few cuttings of some favorite flowering or fruiting shrub. You will be surprised at the number that will grow without much care. We saved the pits from a half bushel of peaches, and this fall planted them between each two fence posts around the orchard, for later budding with buds of Elberta, Carman and Early Crawford.

Include Flowers

AND WITHIN the garden plant a few flowers to greet the beholder with a spot of color—a patch of dahlias in a damp, shady corner; a double row of asters or gladioli; a strip of the colorful annual Dianthus Pinks; an occasional

scarlet runner bean with the Kentucky Wonders; a bit of mignonette for old time's sake; a row of climbing nasturtiums mixed with sparsely-growing castor beans to furnish support—the nasturtium seeds are a great delicacy pickled; a row of sunflowers to screen the corn; or a row of single or double poppies. For the best appearance, plant the low-growing flowers with the low-growing vegetables, and the climbing, or tall-growing plants together.

Trees are pruned in winter to remove dead and decayed wood and to shape the tree, and January is an excellent time to begin pruning the orchards. Cut out all suckers that grow from the root or on the main stem. Many of them, trimmed, make excellent small stakes for plants—house plants, especially. And cut out all the branches that crowd, choosing to remove each time the less sturdy, less symmetrical branch. If a large branch has to be cut, saw into it from below for a little way, then finish from above, to prevent tearing the bark. Make clean cuts so they will heal soon, and paint over the larger ones with paraffin.

Selecting Seed

IN READING the catalogs, it is well to curb the national enthusiasm for "extra-early" varieties, for they are often rather tasteless, market-garden sorts, unsuited to the home garden. There is space here to mention only a few varieties of the common vegetables that have proved especially satisfactory in our family during 30 years of gardening: Golden Bantam for early corn, Stowell's Evergreen and Country Gentleman for late corn; Early Peachblow, a perfect-growing, mealy, tasty potato that keeps well during the winter; Kentucky Wonder, a green-podded pole bean for string beans, fresh and canned (plant a kernel of corn in each hill to save setting bean poles); Wardwell's Kidney Wax Bush beans are excellent; and if you like a yellow-podded pole bean, try Early Cluster Golden Wax; Little Marvel is an excellent early pea, Nott's Excelsior is a medium early pea, and Champion of England is the standard late pea. It is very tall-growing, and needs a four or five-foot support.

Danvers Half-Long is a tender carrot of good flavor; of the larger sorts of beets, Detroit Dark Red; White Egg and Golden Ball are good early turnips; Improved Guernsey parsnips; moss-curl parsley; thick-leaved spinach—New Zealand will grow and furnish tender leaves for a whole season. Iceberg is a good kind of lettuce, although it is very dark colored in a dry season; and Big Boston makes good, hard heads.

Sage Plants Useful

AFEW sage plants are very useful in a garden—the leaves are used fresh all summer and pickled, dried, and put in cans for winter seasoning. The Queen is an excellent small, early, white onion for pickling; and the Yellow Globe Danvers is a good all-around onion. Davis Perfect is a good cucumber for slicing and pickling, but Everbearing is earlier and very good. The first early

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tomato to ripen is Earliana; John Baer is an excellent large tomato; Burbank is a smaller, round tomato of excellent flavor; a plant or two of Golden Ponderosa will give variety to garden and table; and we like a few plants of the small prune tomatoes. Golden Dawn is an excellent yellow sweet pepper; Ruby King is a good red sweet pepper; and the Red Cayenne is ornamental and lends pungency to salads and pickles and meat dishes.

And be sure to try something new each year—a hill or two of Lake Champlain muskmelon, which bears very freely, has a good flavor and ripens in 80 days; or sow some Chinese cabbage to make variety in the salad vegetables. We like it very much in salad, but do not care for it cooked.

Repair the Tools

NOW IS the time to finish caring for the garden tools and furniture. Scrape off the earth, wash them, and oil with kerosene or linseed oil. Clean

and oil the sprayer, and be sure that the wheel hoe is not left outdoors. Well-cared-for tools will save you money by lasting much longer than neglected ones. Mend any that need it now to save time during the busy season.

Clean and paint the garden furniture, and mend any broken or weak places. Clean and paint trellises, stakes, markers, if that has not already been done, and fill in the depleted ranks with new ones.

Pieces of cypress lath make lasting markers—they will last for eight or 10 years. Cut pieces 12 inches long, smooth one end for a few inches to write on, and sharpen the other end. Paint the smooth end white, and write the name of the plant with black crayon. Old markers may have the name sandpapered off and be repainted. The youngsters will like to help with whittling and painting.

And now after mending a bit of fence and repairing the walks, the gardener leans back at ease and reflects that, though he may not have made any resolutions, he has started the New Year well.

Caring for the House Plants

WHILE the outdoor gardener of the family is pruning his trees and mending his tools, the housewife can be doing a few things to help along the welfare of those pleasant companions of the winter days—the house plants. Of course this is the zero hour for plants, for just as the year with its short days is at its lowest ebb, so is the vitality of your house plants, and they must not be forced too much.

If the geraniums have been started early, in fairly small pots (five-inch), they will soon become "pot-bound" and begin to bloom profusely. If the roots have to stop growing, the strength will go into the top and make flowers. A little stimulant once a month is good—dissolve a teaspoonful of nitrate of soda in a quart of water and water the plants well with it once a month—no oftener. It is not a complete fertilizer, supplying the nitrogen element only, and may well be supplemented by a little "complete" commercial fertilizer. A good way to remember the dates is to apply nitrate of soda on the first of the month and commercial fertilizer on the fifteenth, using a "3-6-3" to "5-10-5" formula. We find nitrate of soda good for most plants except bulbs. It hastens blossoms and fruits.

Watering Important

WATERING plants is very important, for they need drink even more than food. Most plants do not like wet feet—nor dry tops. A happy medium is the ideal state. Water thoroughly when you water plants, and let them dry out a bit between waterings. If the soil is crumbly in the fingers and cracks away from the pot, they need water. It is best done by plunging the pots in water and leaving till the top of the soil is wet, so that every bit of soil is moist. Pouring water on top always leaves some dry spots in the soil. Try it with a pot filled with dry soil—you will be surprised at the number of dry spots even after the water has apparently gone all through the soil.

Plants enjoy a shower bath—even as often as every day. Set them in sink or bath tub and shower them with a sprinkler. Or a hand spray with a large bulb is very convenient, as the plants do not have to be moved. Gloxinias and Rex Begonias, however, must not have any water touch them—it will spot the leaves. And a Rex Begonia must be watered carefully where it sits; it is a stately, disdainful plant and resents being touched. A rubber plant or a palm must have its leaves washed every little while with a soft sponge or cloth, and tepid water, on the under as well as the upper sides of the leaves. The plant breathes air and moisture through the leaves unless the pores have become clogged.

English Ivy Resists Cold

IF YOU HAVE a cold, north window, try a pot of English ivy—it will not freeze and does not need sun—only water. If you already have one, take off cuttings now and plant them in pretty little jars for next year's Christmas gifts.

If you are a lover of the dainty, hardy little lily of the valley, or Convallaria, you need not wait till spring for it to appear. Dig out a frozen clump of the pips, and set them in a pot in compost and sand, or leaf mold and sand, or one

part garden earth, one part well-rotted manure, and one part sand. Keep them in a cellar until wanted, then put them in a sunny window and water freely. The Hamburg pips are good for winter plants—they give large flowers—and if planted every two weeks, you will have a continuous bloom. The pips have to be thrown away after forcing, as they do not seem to recover as the larger bulbs sometimes do.

A few branches of forsythia, cut and put in water in a sunny window, will blossom in a few weeks.

Poinsettia Will Bloom Every Year

IF YOU HAVE a Poinsettia left from the holidays, put it in the cellar, watering once a month (on the first is easy to remember) and in spring bring it into the sun and water it well. Shift it into a size larger pot in late summer, and toward Christmas give it a little extra fertilizer or plant food. It will last for years with this treatment, flowering every Christmas. If you have branches of Poinsettia, put them into a pot, and treat like the plant. They will probably take root and make handsome plants.

Begin now to save cereal boxes and other pasteboard containers to start flower and vegetable seeds in. You get strong, individual plants, and the paste board pot may be cut away without disturbing the roots.

Buy Some Tons of EXTRA PROFIT this year

START off the New Year by resolving to make more money from your orchards. Extra dollars come in Chilean Nitrate of Soda bags, for this natural nitrate so invigorates your trees that they produce a much greater yield of fruit.

A few pounds per tree—say 15c worth—produces many bushels more per tree, of highest quality early fruit. The increase in yield materially reduces your production costs and adds to your profit correspondingly.

Chilean Nitrate is not synthetic. It is the natural nitrate

fertilizer that American farmers have used for 100 years. More than 800,000 used it last year to make better crops. It pays a fine profit on all kinds of fruit trees, on truck, corn, grain, and other crops. Try it this year. Now is the best time to buy it.

FREE Book for You

Our new 44-page book, "How to Fertilize Your Crops", is filled with valuable crop facts. It is free. Ask for Book No. 1, or tear out this ad and mail it with your name and address written on the margin.

1830-1930—This year marks the 100th anniversary of the first cargo of Chilean Nitrate brought to the United States

Chilean Nitrate of Soda

EDUCATIONAL BUREAU

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LAFAYETTE, IND.



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ALEXANDRIA, LA.
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In replying, please refer to Ad No. 36-D

MYERS SPRAY PUMPS

Designed for Orchardists, Gardeners, Farmers and Others Who Demand the BEST



FIG. 2416



FIG. 1521



FIG. 1726

No matter how large or small your orchard or vineyard—regardless of your truck or field acreage—or whether you have home-lot trees, shrubbery and plants to spray—or barns, chicken houses and other buildings to whitewash or disinfect—your individual spraying job can be thoroughly and economically done with a Myers Spray Pump.

There is a dependable size for every service. Small hand knapsack, compressed air and bucket sprayers to the large automatically controlled self-oiling power spray rigs and field sprayers is yours to select from in the Myers line. All are quality built by the world's leading pump specialists to give economical, trouble-free, efficient service. See the Myers dealer near you for a Myers Spray Pump exactly suited to your needs, or write us direct for late catalog and reliable sprayer's manual.

Take Off Your Hat To The MYERS PUMPS-WATER SYSTEMS-HAY TOOLS-DOOR HANGERS



FIG. 2570



FIG. 2397

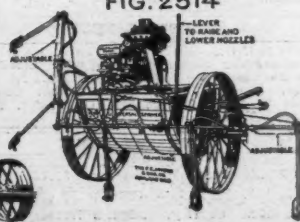


FIG. 2514

THE F.E. MYERS & BRO. CO. No. 144 Orange St. ASHLAND - OHIO. PUMPS-WATER SYSTEMS-PUMPING JACKS-HAY TOOLS-DOOR HANGERS

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Write advertisement on separate sheet. Please
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5 words for address.

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the 10th of this month for next issue.

Address
AMERICAN FRUIT GROWER MAGAZINE
63 West Jackson Boulevard, CHICAGO

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IF YOU WANT A WONDERFUL OPPORTU-
nity to make \$15 profit a day and get a new
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your name immediately. No experience neces-
sary. Albert Mills, 4902 Monmouth, Cincinnati, O.
BECOME INDEPENDENT—SELL OUR \$10.00
year accident and health policy. \$10,000.00 prin-
cipal sum. \$25.00 stated weekly sickness and
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Large commissions and renewals. Experience un-
necessary. Full or spare time. Imperial Depart-
ment, 229 Hamp Bldg., St. Paul, Minn.

AMAZING PROFITS SHOWING RAYON BED-
spreads; linen-like tablecloths, wash like oil-
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Park Station, Chicago.

WANTED—MAN WHO KNOWS FARM LIFE TO
travel in country. Steady work, good profits.
McConnon & Company, Room A-1401, Winona,
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WE START YOU WITHOUT A DOLLAR.
Soaps, extracts, perfumes, toilet goods. Ex-
perience unnecessary. Carnation Co., 278, St.
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WE PAY \$45 A WEEK AND EXPENSES AND
give Ford auto to men to introduce poultry and
stock compounds. Imperial Co., D-20, Parsons,
Kans.

CHICKS

WHITE LEGHORN CHICKS AND EGGS—BIG
discount if ordered now. Sired by pedigreed
males, records to 320 eggs. Winners at 20 egg
contests. Egg-bred for 30 years. Shipped C. O.
D. Catalog, special price bulletin free. Thou-
sands of pullets, hens, cockerels at low prices.
George B. Ferris, 922 Union Ave., Grand Rapids,
Mich.

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COONHUNTERS, DEPOSIT YOUR MONEY AND
try my four-year-old coonhound. I pay all ex-
press. Bob Finley, S-88, Charleston, Mo.

COONHUNTERS—WILL SELL AT A BARGAIN
one 4-year-old coonhound on long trial for
\$25.00. Dr. Fred Bryant, East Prairie, Mo.

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FARMING IS PROFITABLE IN WESTERN
Florida and southern Alabama. Almost every
variety of truck, fruit and general farm crops,
also semi-tropical fruits thrive in this rich,
deep soil. Climate permits outdoor work every
day and assures 300 growing days. Native
grasses, cultivated forage, feed crops insure ex-
cellent returns from dairying and stock raising.
It's a proven poultry section. Abundant rainfall;
good schools, roads and living conditions; low
land prices with reasonable terms; new extension
Florida railroad affords through service to all
northern markets. Write for free booklet, "Farm-
ing in Western Florida and Southern Alabama."
C. B. Michelson, Colonization Agent, Frisco Lines,
833 Frisco Bldg., Saint Louis.

\$400 GETS FRUIT-POULTRY FARM—600 FRUIT
trees, 40 acres near city; nice stream; attract-
ive, roomy home, new buildings, alone worth
price; only \$2500 with \$400 down. Picture page
86. Free catalog. Strout Agency, 255-A Fourth
Ave., New York City.

FARMS WANTED

WANTED—HEAR FROM OWNER HAVING
good farm for sale. Cash price, particulars.
John J. Black, Chippewa Falls, Wis.

WANTED TO HEAR FROM OWNER OF LAND
for sale. O. Hawley, Baldwin, Wis.

FUR RABBITS

MAKE BIG MONEY WITH CHINCHILLA
Rabbits. Real Money Makers. Write for facts.
846 Conrad's Ranch, Denver, Colorado.

HELP WANTED

WANTED—THOROUGHLY EXPERIENCED
orchard man. One who can oversee and man-
age other help. 400 acres apples, peaches and
pears. Ideal home and surroundings. Must be
a hard worker and able to see that others un-
der him work. Write, fully stating all about
yourself, number in family, wages wanted, etc.,
etc. Address W. Harvey Waddell, Fruit Grower
and Shipper, Florida, Clay County, Ill.

HELP WANTED—INSTRUCTION

WORK FOR "UNCLE SAM." POSTOFFICE
clerks, carriers, railway postal clerks, \$1700-
\$2700 year. Men 18-45. Sample coaching free.
Write immediately. Franklin Institute, Dept.
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WANTED IMMEDIATELY, MEN-WOMEN, 18-
55, qualify for steady government positions:
\$105-\$250 month; common education; no govern-
ment experience required; vacations with pay;
money needed soon. Write. Instruction Bureau,
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BE AN AUCTIONEER. EARN \$25-\$100 DAILY.
Send for latest illustrated catalogue, also how
to receive Home Study Course free. Reppert's
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MISCELLANEOUS

OLD MONEY WANTED—WILL PAY FIFTY
dollars for nickel of 1915 with Liberty head
(no Buffalo). We pay cash premiums for all rare
coins. Send 4c for large coin folder. May mean
profit to you. Numismatic Co., Dept. 546, Ft.
Worth, Texas.

NURSERY STOCK

100 DUNLAP STRAWBERRY PLANTS, 75c;
100 Mastodon Everbearing, \$1.75; postpaid.
Dunlap, \$2.75, 1000. Raspberries, grapes, orna-
mental trees, gladioli, 10 packets vegetable
seed, 10c. Catalog. Kiger's Nursery, Danville,
Iowa.

100 GENUINE MASTODON EYEBEARING.
\$1.75. New Blakmore, Bitterroot, Red Gold,
25 plants, 75c. Plant, seed catalog free. Edw.
Lubke, New Buffalo, Mich.

CULLS & OVER-RIPES

Incidentally, one of the best ways to
put an end to all wars is not to begin
any.—Judge.

A luxury is something that usually
costs more to sell than it does to make.
—Louisville Times.

Here's hoping that Gabriel won't spoil
the Big Day by using a saxophone.—
Evansville Courier.

Eventually, we imagine, television will
make it possible for spectators in a mod-
ern stadium to actually see the football
games.—Wilmington News.

Every specialist does charity practice,
but it isn't his charity. Rich patients pay
for it.—Dallas Journal.

One reason we await television with
eager anticipation is to see if the morning
exercise announcer is actually going
through the exercises himself.—Brun-
swick Pilot.

Some persons who become wrapped in
their own thoughts are provided with
very thin covering.—Council Bluffs Non-
pareil.

At times, however, a fool driver just
seems that way because you need a goat
to ease your own conscience.—Terre
Haute Post.

The young man who wants to see a
girl's eyes sparkle should buy her a many-
carat diamond.—Cedar Rapids Gazette-
Republican.

Whisk Broom to Power Sprayer

(From Page Six)

which is a modification of the old Ver-
morel. The disk nozzle appeared in 1906
and has proved the most useful small ca-
pacity nozzle of the present day.

Before 1916, this nozzle was widely
used in connection with bamboo spray
rods. It was necessary to use high spray
towers and long spray poles to reach high
trees. Long rods with a shut-off on one
end and a cluster of nozzles on the other
were employed.

In 1916 the first spray gun appeared.
This improvement was also first produced
by the Hull Brothers and was invented
by John C. Hull, who saw the need for
a less cumbersome way of discharging
spray material on the tree. About 3000
of these were in use the following year.
The spray gun gives the fruit grower a
device about 18 inches long that has a
controlling valve enabling the operator
to spray at any desired range or width so
that the tallest tree can be sprayed from

the ground or from the top of the tank.
All spray machine companies now manu-
facture spray guns.

What the future will bring forth in
regard to spray equipment is hard to fore-
see. Each year more powerful sprayers
with larger capacity pumps, greater pres-
sure and more efficient engines are placed
on the market. The industry is now de-
veloping high pressure stationary spray
plants having a multiplicity of high pres-
sure units on the one structure, to fur-
nish an extensive pipe line throughout the
orchard, with the spraying pressure all
from one central plant. With such a
spray plant one or more pumps can be
employed which will supply pressure to
as many men in the orchard as is found
advisable to use. Stationary spraying
plants were pioneered by Hayward Reed
of Sacramento in 1908 and A. J. Dear
of Wenatchee, Wash., in 1909. William Moss
in 1921 established a 10-acre system for
stationary spraying which demonstrated
its practical value.

"Teague Plan" Meets Opposition

(From Page 19)

dling of the citrus industry's problems.

Should Eliminate Competition

"WE WERE very much pleased to
receive the invitation from the
Board to discuss the possible consolida-
tion. It promised a golden opportunity
practically to eliminate the destructive
and useless competition of one Califor-
nia citrus grower with another. In our
opinion, such an arrangement if in effect
the past season would have materially as-
sisted in securing better results for the
excessive crop running to extremely small
sizes which we had to market.

"While it may be debatable whether
there was a surplus of oranges and grape-
fruit in the markets the past season the
results were not satisfactory to many
growers and the citrus acreage already
planted in California, Arizona, Texas
and Florida is sufficient to produce much
larger crops than last years' in seasons
of favorable climatic conditions. Should
a real surplus be produced, the California
orange growers are not in a great deal
better position to handle it successfully
than were the grape and canning peach
producers nor the California lemon grow-

ers until over 90 per cent of them got
together and actively took hold of their
problem.

Foreign Market Needs

"OUR INCREASING Valencia
orange production calls for the
greatest possible development of foreign
markets where there is a latent demand
for high quality summer oranges which
have not been available heretofore. Work
is being done on this by the Exchange but
it is seriously interfered with by the 25
per cent of the shippers outside the or-
ganization at times forwarding over 50
per cent of the exports, resulting in a low-
ering and fluctuation in those markets.

"Certainly the positions taken by the
Mutual Orange Distributors and the Cali-
fornia Fruit Growers' Exchange as in-
dicated in their replies to the invitation
of the Federal Farm Board cannot both be
in the interest of the growers and the
grower's interest is identical whether he
markets through one or the other co-
operative organization.

"A conference as suggested by the
Federal Farm Board might have ironed
out misunderstandings and pointed the
way to an improved handling of the in-
dustry's problems."

Meetings of Fruit Growers

MARYLAND—Maryland State Horticultural
Society meeting will be held at the Lord Balti-
more Hotel, Baltimore, January 7 and 8, 1930.—
A. F. Vierheller, Assistant Secretary-Treasurer,
College Park.

MASSACHUSETTS—Massachusetts Fruit
Growers' Association meeting will be held at
Worcester, January 8, 9 and 10, 1930. William
R. Cole, Secretary, Amherst.

Union Agricultural meetings will be held in
the Worcester Armory, Worcester, January 8,
9 and 10, 1930—William R. Cole, Secretary,
Amherst.

NEBRASKA State Horticultural Society win-
ter meetings will be held in conjunction with
the Organized Agriculture meetings at Lincoln,
January 7, 8 and 9, 1930, on the Agricultural
College Campus.—E. H. Hoppert, Secretary,
Lincoln.

NEW YORK—Seventy-fifth annual meeting of
New York State Horticultural Society will be

held at Edgerton Park, Rochester, January 15,
16 and 17. A three-day speaking program will
be carried out.—Roy P. McPherson, Secretary,
Le Roy.

PENNSYLVANIA State Horticultural Associa-
tion meeting will be held January 21, 22 and
23, 1930.—S. W. Fletcher, Secretary, State
College.

TENNESSEE State Horticultural Society annual
convention will be held at Hotel Peabody,
Memphis, January 16 and 17, 1930.—G. M.
Bentley, Secretary-Treasurer, Knoxville.

Tennessee State Nurserymen's convention will
be held at Hotel Hermitage, Nashville, January
29 and 30. These are the postponed meetings
which were to be held December 12 and 13.—
G. M. Bentley, Secretary-Treasurer, Knoxville.

WEST VIRGINIA State Horticultural Society
meeting dates have not been set.—H. P. Sevy,
Secretary, Martinsburg.

NURSERY STOCK

PEACH AND APPLE TREES, \$5.00; \$7.50 PER
100 and up. Yellow Delicious and Blood Red
Delicious apples. In small or large lots. Plums,
pears, cherries, grapes, nuts, berries, pecans,
vines, ornamental trees, vines, evergreens, shrubs.
Free catalog. Tennessee Nursery Company, Box
101, Cleveland, Tenn.

BEST VARIETIES, APPLE AND PEACH TREES
low as 5c. grape vines 3c, ornamental shrubs
10c, evergreens 25c. Catalog free. Benton County
Nursery, Box 100, Rogers, Ark.

POSITION WANTED

ORCHARDIST—EXPERIENCED, WANTS PO-
sition. Salary or part salary, part share in
crop. Best references. Address "Orchardist,"
care American Fruit Grower.

SONG POEM WRITERS

SONG POEM WRITERS, "REAL" PROPOS-
ition. Hibbeler, D-90, 2104 N. Keystone, Chicago.

Index to Advertisements

The concerns whose advertisements
appear listed below are equipped to
give prompt and satisfactory service to
the American fruit grower. Most of
them issue literature that is freely at
the disposal of our subscribers. It is to
the advantage of all that when writing
to an advertiser you use the address
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"I read Your Advertisement in
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QUESTIONS & COMMENT

(From Page 13)

known as fuzz, or pubescence. It is natural for the canes of the raspberry plant to produce this substance, and, of course, it is a perfectly healthy condition.

The fuzz, or pubescence, observed on grape berries is produced on the fruit of the grape in a way somewhat similar to that of the production of the substance on the raspberry canes.

Pruning of Young Peach Trees

I have about 16 acres of peach orchard four and five years old. Would you advise cutting the trees back every year? Give me all the information you can on pruning these trees, please.—G. E. S., Pennsylvania.

THE PRUNING of bearing peach trees may be briefly summarized as follows: First, during bloom or as soon as danger of late frost is likely to be over, the trees should be pruned moderately, thinning out the branches throughout the tree sufficiently to admit sunlight and heading back the most vigorous new wood to a distance of about one-fourth to one-third of its length. Second, if the bloom is heavy the pruning may be more severe, the thinning out greater, and the heading back more general. Third, if the bloom is very light, in order to procure a crop, very little pruning should be given. Fourth, when there is no bloom as a result of low temperatures during the winter or for other reasons, the branches of the tree should be cut back to two-year-old wood. This will invigorate the trees and a vigorous growth of new fruiting wood should be produced for the next year. The height of the tree will also be lowered and fruiting wood may be caused

to develop lower down on the larger branches.

A combination of light winter heading and thinning done either at the same time as the heading or postponed until early in the summer permits regulation of the size and shape of the tree and at the same time insures an open tree that allows sunlight to penetrate to the center, where it aids not only in the development of hardy fruit buds but also in coloring the fruit and in reducing susceptibility to brown rot. In heading, the branch should be cut back to a side branch, if possible, leaving a short stub one-quarter to one-half inch in length. In thinning, the entire branch is removed from the base, cutting close to the main limb and leaving no stub. Peach trees require pruning to secure more uniformly strong, well-formed trees; to give better distribution of fruit wood; to assist in the maintenance of vigor; and to remove weak, injured, dead or pest-infested branches.

The amount of pruning, both heading and thinning, but more particularly the severity of the heading, is regulated by the prospects of a crop. In case a heavy crop is expected the tree may be headed back quite severely, removing perhaps one-half to two-thirds of the previous year's growth, and with it a large number of the fruit buds on the ends of the shoots. This procedure lightens the subsequent work of thinning the crop. The smaller the prospective crop the less severe the heading should be in order to insure a full crop. It is practically impossible, in view of the danger from late frost, to tell how large a crop will survive the winter. It is, therefore, advisable to wait until the trees are in bloom, at which time pruning can be regulated to much better advantage.

Growing Walnuts in the Pacific Northwest

(From Page Seven)

tainly show stunted appearance. There is no more regal tree than a well grown walnut tree, while on the other hand, there is no more disreputable looking tree than a walnut tree that must attempt to grow on an unsuitable soil.

With the above three requirements of soil met, that soil must be located where the danger from frost is at a minimum. The walnut foliage is very susceptible to frost damage. A frost in the spring after the leaves are out will not only kill back that growth, but will also kill off the crop for that year. It seems to be almost as sensitive to frost as the grapevine.

In most of the Northwest, freedom from frost is easiest had by locating on an elevation of 50 to 100 feet above the low lying ground. This much elevation has been a great protection against frost, and also against the few winter freezes that have occurred in the past. The rolling foothills are places where the best locations are to be had as protection from frost. Also here are to be found some of the deepest and best of the soils. Some of the upper hill soils of certain types are almost synonymous with good walnut soils and locations for planting.

Planting

THERE ARE today many productive and profitable orchards planted with seedling walnut trees. However, at the present time nearly all the trees set out are grafted trees, for which northern California black walnut is used as stock. This is an interesting line of trees. Apparently when the first white men went to California there were a few isolated groups of trees in northern California, several hundred miles north of the black walnut in the southern part of the State, and quite different. Some botanists have been inclined to make these northern trees only a sub-species, while others make them a distinct species, *Juglans hindsii*. At any rate, the wild trees soon disappeared and the only ones found now are those planted as roadside or ornamental trees. From that type of tree comes the seed for the nursery. It is a species that apparently has practically disappeared from the wilds.

On account of the large size that walnut trees will finally reach, they are planted at the rate of 12, 17, or 25 trees to the acre. That leaves much open space at first, that in most cases must be utilized for intercrops, but the tree in time will fill all the space. Where trees are planted too closely at first they soon react and thinning is necessary. In old orchards the thinning, which has usually consisted of taking out one-half of the trees, has never had any material effect on the crop, so far as decreasing it is concerned. The crop often is stationary for a year or two after thinning and then goes on increasing year by year.

There is no irrigation of walnut orchards in the Northwest. All of the plantings are handled by clean cultivation during the summer, and usually cover-cropping is practiced during the winter. If placed on the proper kind of soil, a dust mulch will hold the moisture well through the summer.

As a rule there have been no insect pests to bother the walnut. The codling moth has been known to be on some trees for years, but it does not seem to spread. In 1928 for the first time it was considered necessary by some to dust for the aphids. Whether that will be necessary in the future, remains to be seen, as last year only part of the growers used any form of control.

The walnut blight has been a constant factor for loss almost from the beginning, but varies from year to year in its severity. There has never been any method of control devised for this trouble, though at the present time there are very definite indications that a spray program can be worked out that will aid in its control.

Harvesting

HARVEST SEASON is a busy time for the walnut grower. The nuts must be picked up from the ground promptly on dropping, and in most cases are aided in falling by a good shaking of the trees at each picking. Delay in picking allows staining and molding of the shell. Walnut shells stain very easily.

All the walnuts in the Pacific Northwest are washed, as a rule. Climatic conditions are such that dirty nuts are al-

most inevitable, so that the whole crop is put through a washer, where the nuts are thoroughly scrubbed before going to the drier.

The common drier is the prune or tunnel drier. Most of the ranches have prune driers. There are very few driers especially built for drying walnuts. The bin driers, where the walnuts are piled two or three feet deep and then the warm air forced through, will at times dry the nuts in 18 to 20 hours. There are, however, very few of these driers in the Northwest. The other types of driers are slower. In some seasons of high humidity, where the draft is poor, the tunnel driers take 72 hours to dry nuts.

Marketing

THE NORTHWEST nuts formerly were sold in their natural color. When the market was a local proposition that was easy, but when the nuts were sent out into distant cities to sell, there the custom was to expect bleached nuts, and that was the only kind that would sell. Now the nuts from this section that are to go to outside markets are bleached according to the demand from the trade. It really is money in the grower's pocket, for more nuts will go into the first grade when bleached and cleaned.

One association handles about two-thirds of the nuts, while the remainder is distributed among a good many agents.

FREE TO FARMERS

The Cutaway Harrow Company, Higganum, Conn., are sending free to farmers two well-known books, "The Soil and Its Tillage" and the Clark "Cutaway" Catalog of disk harrows and plows. The first book contains much valuable information about modern farming methods; it tells how to get bigger and better crops with less time, labor and money. The Clark "Cutaway" Catalog describes the "Cutaway" line of disk harrows from the Baby Cultivator and One Horse Harrow to the Double Action Tractor Harrows. It tells about special machines for special work such as the Bush & Bog Plow and Harrow, Orchard Plows, Single Action Extension Harrows, Smoothing Harrows, and others. The catalog also explains why disks with edges FORGED sharp, a feature found only on genuine Clark "Cutaway" harrows, STAY sharp longer and do not crack, break or chip. Send for these two books today. A postal will do. Address THE CUTAWAY HARROW COMPANY, 127 Main Street, Higganum, Conn.

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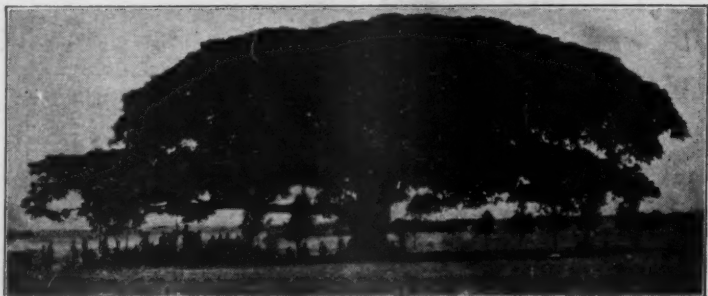
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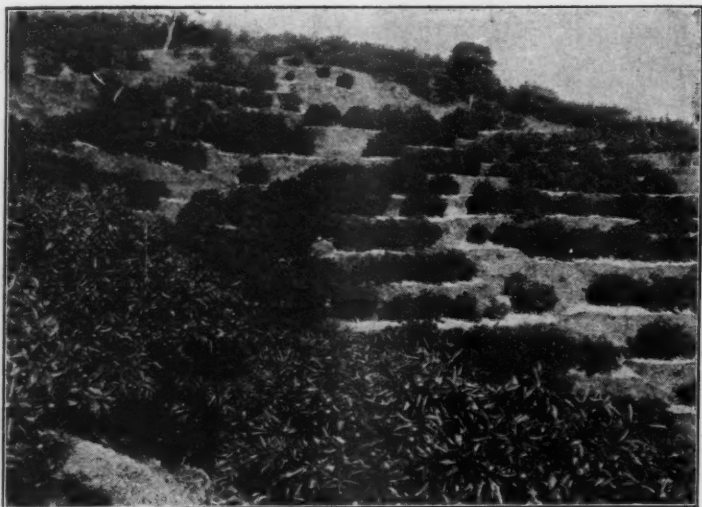
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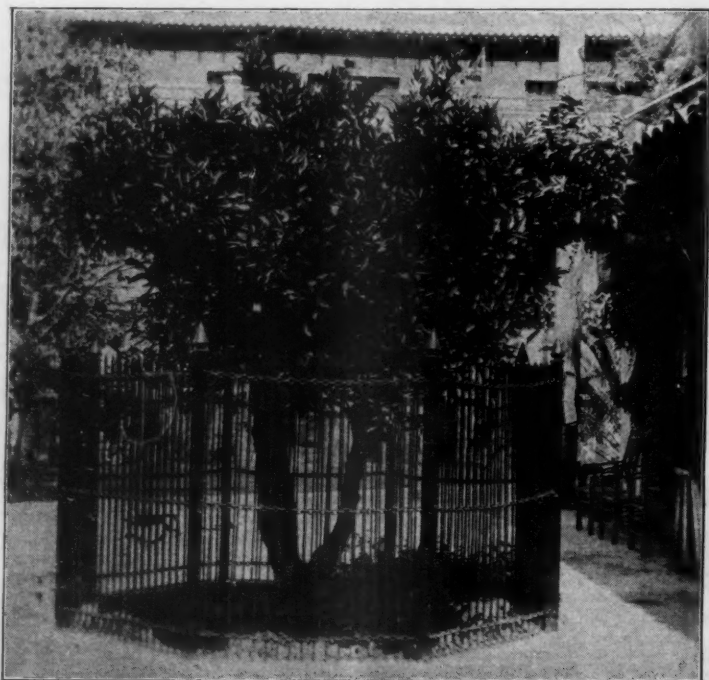
AMERICAN FRUIT GROWER MAGAZINE will pay Five Dollars for the photo selected each month as the PRIZE PHOTO, and will pay One Dollar each for other photos not receiving the prize money but which we are able to use. Send your photo, illustrating anything of interest to the fruit grower, with a short item telling the FACTS about the picture. Address photos to the Editor. If not suitable for our use, your photo will be returned.



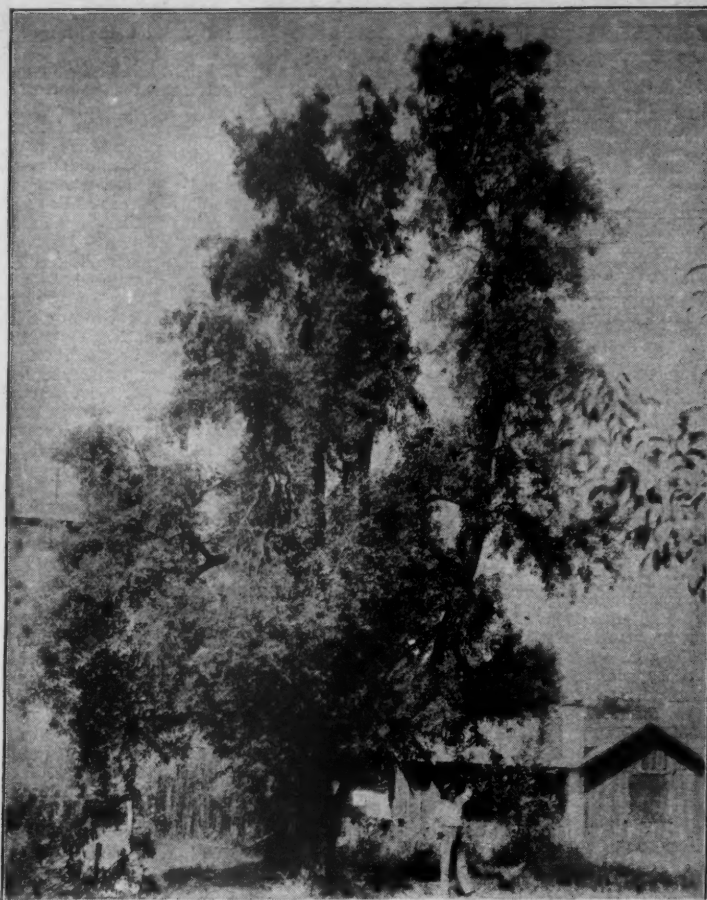
This famous "Mission" fig tree is offered as Africa's contribution to "big fruit tree" pictures by one of our foreign readers, Eric Beaton, Kissimm, Kenya Colony, British East Africa. It is located near the shore of Lake Victoria Nyanza. This giant tree is nearly 60 feet high, has a limb-spread of 168 feet, and a trunk 35 feet around at the height of a man's head. Beneath its shade as many as 1000 natives have gathered, closely packed, to listen to the white missionaries. (PRIZE PHOTO).



Another foreign reader, Fumikatsu Ono, of Nishino, Nakakoma, Yamanashi, Japan, himself a grower of apples, grapes and cherries, sends this picture of the Unshu orange orchard at the Shinyoka Prefecture. We hope, in a few months, to be able to present our readers with a story from Mr. Ono, telling us something about fruit growing in the Flowery Kingdom.



The Roosevelt Navel orange tree, the more famous of the two parent trees which supplied the first generation of Navel buds. The roots of this famous tree are dead, yet it has 13 sets of perfectly good roots from orange seedlings, the tops of which were grafted into the trunk of the tree.



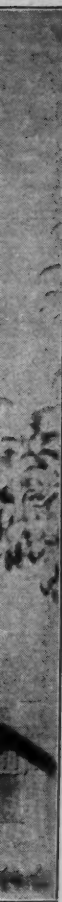
Another big tree, this one a pear, on the premises of Dan W. Hildebrand, Farmersville, Calif. It is 70 years old, 53 feet high, with a trunk over two and a half feet in diameter. It is said to be the largest pear tree in San Joaquin Valley, if not in all California. Mr. Hildebrand is holding a pear on one of the lower limbs in his hand.



Transporting the "hair of the dog." Old Asia supplied America with many of the most pernicious insects attacking fruit trees. So back we go to Asia for parasites to keep these pests in subjugation. This is a "trainload" of *Prospatella lahorensis*, a natural parasite of the citrus white fly, on the way to begin a voyage to America, where the *Prospatella* will, in Florida and other citrus regions, set up housekeeping within the bodies of white fly larvae.



This is the "Medfly Commission" appointed by Secretary of Agriculture Hyde to survey and report on the status and requirements of the campaign for eradication of the Mediterranean fruit fly. From left to right in the picture are: W. P. Flint, W. O. Thompson, W. C. Reed, J. J. Davis and W. H. Alderman.



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